Bijlagendocument
Hidradenitis suppurativa
Richtlijn 2019

Colofon

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Inhoudsopgave

Bijlage A: Belangenverklaringen

Alle werkgroepleden hebben schriftelijk verklaard of ze in de laatste drie jaar directe financiële belangen (betrekking bij een commercieel bedrijf, persoonlijke financiële belangen, onderzoeksfinanciering) of indirecte belangen (persoonlijke relaties, reputatie management, kennisvalorisatie) hebben gehad. Een overzicht van de belangen van werkgroepleden en het oordeel over het omgaan met eventuele belangen vindt u in onderstaande tabel. De ondertekende belangenverklaringen zijn op te vragen bij het secretariaat van de Nederlandse Vereniging voor Dermatologie en Venereologie.

Werkgroeplid (2017-2019)	Firma	Activiteit	Actie ondernomen
Dr. B. Horváth, dermatoloog (voorzitter, tot september 2018)	Abbvie	Consultatie/advisering, wetenschappelijk onderzoek, cursus, congres	Geen
	Novartis	Consultatie/advisering, wetenschappelijk onderzoek	Geen
	Solenne BV	Wetenschappelijk onderzoek	Geen
	UCB	Consultatie/advisering	Geen
	Janssen	Consultatie/advisering	Geen
Dr. H.H. van der Zee, dermatoloog (voorzitter, vanaf september 2018)	Abbvie	Consultatie/advisering, congres	Geen
	InflaRX	Consultatie/advisering	Geen
Mw. B.E. den Boogert, wondconsulent	Geen	Geen	Geen
Dhr. M.G. Buimer, Chirurg	Geen	Geen	Geen
Dr. J.L. Dickinson-Blok, dermatoloog	Geen	Geen	Geen
Dr. R.J.B. Driessen, dermatoloog	Abbvie	Consultatie/advisering, wetenschappelijk onderzoek, cursus, congres	Geen
	Galderma	Consultatie/advisering, wetenschappelijk onderzoek, congres	Geen
	Cutanea life sciences	Wetenschappelijk onderzoek	Geen
Dr. J.J.E. van Everdingen, dermatoloog n.p.	Geen	Geen	Geen
Drs. M.F. Hofhuis, arts-onderzoeker (secretaris)	Geen	Geen	Geen
Drs. J. Huizinga, verpleegkundig specialist	Abbvie	Consultatie/advisering, wetenschappelijk onderzoek	Geen
	Lilly	Consultatie/advisering, congres	Geen
	Novartis	Consultatie/advisering	Geen
Dr. I.C. Janse, dermatoloog	Abbvie	Wetenschappelijk onderzoek	Geen
	Novartis	Wetenschappelijk onderzoek	Geen
Prof. Dr. J.H.G. Klinkenbijl, chirurg	Geen	Geen	Geen
Dhr. H. ter Linden, plastisch chirurg	Geen	Geen	Geen
Dr. J.R. Mekkes, dermatoloog	Geen	Geen	Geen
Prof. Dr. E.P. Prens, dermatoloog	Abbvie	Consultatie/advisering	Geen
	Novartis	Consultatie/advisering	Geen
	UCB	Consultatie/advisering	Geen
	Janssen-Cilag	Consultatie/advisering	Geen
Drs. L.M. Prens, PhD-kandidaat	Galderma	Presentatie	Geen
Drs. K. van Straalen, PhD-kandidaat	Abbvie	Congres	Geen
Drs. L. Teligui, arts-onderzoeker (secretaris)	Geen	Geen	Geen
Dr. A.R.J.V. Vossen, dermatoloog i.o.	Geen	Geen	Geen
Mr. E.D. van Zadel, vertegenwoordiger namens Hidradenitis Patiënten Vereniging (HPV)	Abbvie	Activiteiten voor patiënten	Geen

Bijlage B: Zoekstrategieën (2017 – 2019)

Voor alle hoofdstukken geldt dat de zoekstrategieën zijn uitgevoerd in de EMBASE database, Medline database en de Cochrane library. Enkel de keywords gebruikt in de Medline database zijn weergeven. Experts op het gebied van hidradenitis suppurativa (HS) werden geraadpleegd voor eventuele ontbrekende artikelen en / of case reports.

De zoekactie over de behandeling met biologicals is met behulp van de PICO-systematiek opgebouwd. De zoekvragen hebben de P als gemeenschappelijke onderdeel. De overige onderdelen van de PICO werden geformuleerd op basis van de uitgangsvraag.

Voor de P: patiënten met HS zonder leeftijdsrestricties.
Voor de I: ieder type interventie om HS te behandelen; combinatiebehandelingen met verschillende types therapieën werden niet meegenomen.
Voor de C: versus placebo, werkzame behandeling (active treatment) of geen behandeling.
Voor de O: primaire uitkomstmaten en secundaire uitkomstmaten.

Hoofdstuk Biologicals (2017)

Er werd per biological een search verricht. Voor het hoofdstuk anakinra en ustekinumab is besloten niet te limiteren op jaartal, omdat er in de vorige richtlijn nog geen hoofdstuk over deze middelen bestond. Ook is niet gelimiteerd op artikeltype, omdat de hoeveelheid studies uit de search overzichtelijk was. Artikelen werden op basis van titel en abstract geselecteerd. De inclusiecriteria waren studies die de effectiviteit en veiligheid van het desbetreffende middel op een prospectieve wijze onderzochten. Artikelen die hieraan niet voldeden, werden geëxcludeerd. De search is geüpdatet tot 1 september 2016.

Adalimumab

1. Hidradenitis suppurativa [mesh term, explode]
2. Hidradenitis.mp
3. Hidradenitis suppurativa.mp
4. Acne ectopica.mp or acne inversa.mp
5. 1 or 2 or 3 or 4
6. Adalimumab [mesh term, explore]
7. Adalimumab.mp
8. Humira.mp
9. 6 or 7 or 8
10. 5 and 9
11. Limit 10 to “yr=2009-current”
12. Limit 11 to (clinical study or clinical trial, all or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or clinical trial or comparative study or controlled clinical trial or guideline or meta analysis or multicenter study or practice guideline or randomized controlled trial or retracted publication or "retraction of publication")

Etanercept

1. Hidradenitis suppurativa [mesh term, explode]
2. Hidradenitis.mp
3. Hidradenitis suppurativa.mp
4. Acne ectopica.mp or acne inversa.mp
5. 1 or 2 or 3 or 4
6. Etanercept [mesh term, explode]
7. Etanercept.mp
8. Enbrel.mp
9. 6 or 7 or 8
10. 5 and 9
11. Limit 10 to yr=”2009-current”

12. Limit 11 to (humans and (clinical study or clinical trial, all or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or clinical trial or comparative study or controlled clinical trial or "corrected and republished article" or guideline or meta analysis or multicenter study or practice guideline or randomized controlled trial or retracted publication))

Infliximab

1. Hidradenitis suppurativa [mesh term, explode]
2. Hidradenitis.mp
3. Hidradenitis suppurativa.mp
4. Acne ectopica.mp or acne inversa.mp
5. 1 or 2 or 3 or 4
6. Infliximab [mesh term, explode]
7. Infliximab.mp
8. Remicade.mp
9. 6 or 7 or 8
10. 5 and 9
11. Limit 10 to yr=”2009-current”
12. Limit 11 (humans and (clinical study or clinical trial, all or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or clinical trial or comparative study or controlled clinical trial or "corrected and republished article" or guideline or meta analysis or multicenter study or practice guideline or randomized controlled trial or retracted publication or "retraction of publication")

Ustekinumab

1. Hidradenitis suppurativa [mesh term, explode]
2. Hidradenitis.mp
3. Hidradenitis suppurativa.mp
4. Acne ectopica.mp or acne inversa.mp
5. 1 or 2 or 3 or 4
6. Ustekinumab [mesh term, explode]
7. ustekinumab.mp
8. Stelara.mp
9. 6 or 7 or 8
10. 5 and 9

Anakinra

1. Hidradenitis suppurativa [mesh term, explode]
2. Hidradenitis.mp
3. Hidradenitis suppurativa.mp
4. Acne ectopica.mp or acne inversa.mp
5. 1 or 2 or 3 or 4
6. Interleukin 1 receptor antagonist protein [mesh term, explode]
7. Anakinra.mp
8. Kineret.mp
9. 6 or 7 or 8
10. 5 and 9

Hoofdstuk Pijn en pijnbehandeling (2017)

Er werd niet op studietype gelimiteerd, omdat er weinig tot geen klinische trials zijn die zich specifiek op pijn en pijnbehandeling bij HS richten. Artikelen werden op basis van titel en abstract geselecteerd. De inclusiecriteria waren artikelen met als onderwerp pijn / pijnbehandeling bij HS. Daarnaast werden ook artikelen geïncludeerd waarin een hoofdstuk over het desbetreffende onderwerp werd geschreven. Artikelen die niet hieraan voldeden, werden logischerwijs geëxcludeerd.

Keywords – uitgevoerd op 21 april 2016

1. Hidradenitis suppurativa [mesh term, explode]
2. Hidradenitis.mp
3. Hidradenitis suppurativa.mp
4. Acne ectopica.mp or acne inversa.mp
5. 1 or 2 or 3 or 4
6. Pain [mesh term]
7. Pain perception [mesh term]
8. Pain measurement [mesh term]
9. Pain management [mesh term]
10. Analgesics [mesh term, explode]
11. Analgesia [mesh term, explode]
12. Painkiller*.ti,ab
13. Pain medication.ti,ab
14. 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13
15. 5 and 14

Hoofdstuk Wondzorg (2017)

Er werd niet op studietype gelimiteerd, omdat er weinig tot geen artikelen zich specifiek op wondverzorging bij HS hebben gericht. Artikelen werden op basis van titel en abstract geselecteerd. De inclusiecriteria waren artikelen die het onderwerp wondzorg bij HS bespraken. Artikelen die hieraan niet voldeden, werden logischerwijs geëxcludeerd.

Keywords – uitgevoerd op 12 april 2016

1. Hidradenitis suppurativa [mesh term, explode]
2. Hidradenitis.mp
3. Hidradenitis suppurativa.mp
4. Acne ectopica.mp or acne inversa.mp
5. 1 or 2 or 3 or 4
6. Bandages [mesh term, explode]
7. Skin care [mesh term, explode]
8. Dressings.ti,ab,kw
9. (Compresses or compress).ti,ab,kw
10. 6 or 7 or 8 or 9
11. 5 and 10

Database	Date of search	# hits
EMBASE	19-03-2018	144
MEDLINE	19-03-2018	105
Cochrane	19-03-2018	103
Total		352
Duplicates		97
Net hits		**255**

Embase 19-3-2018:
('suppurative hidradenitis'/exp OR 'hidradenitis suppurativa':ti,ab OR hidradenitis:ti,ab OR 'acne inversa':ti,ab OR verneuil*:ti,ab) AND ('sexual*' OR 'sexual health' OR wpai OR 'skindex' OR 'quality of life enjoyment and satisfaction questionnaire' OR 'q les q sf' OR 'functional assessment of chronic illness therapy fatigue' OR 'facit f' OR '6 item scale' OR 'beck depression inventory' OR 'bdi sf' OR 'short form 36' OR 'sf 36' OR 'skindex 29' OR 'work productivity and activity impairment questionnaire' OR 'treatment satisfaction questionnaire for medication' OR 'eq5d' OR 'dlqi'/exp OR dlqi OR 'dermatology life quality index' OR 'quality of life' OR 'quality of life'/exp) AND (('clinical study'/de OR 'case control study'/de OR 'family study'/de OR 'longitudinal study'/de OR 'retrospective study'/de OR ('prospective study'/de NOT 'randomized controlled trial'/de) OR 'cohort analysis'/de OR ((cohort NEAR/1 (study OR tudies)):ab,ti) OR (case:ab,ti AND ((control NEAR/1 (study OR studies)):ab,ti)) OR (follow:ab,ti AND ((up NEAR/1 (study OR studies)):ab,ti)) OR ((observational NEAR/1 (study OR studies)):ab,ti) OR ((epidemiologic NEAR/1 (study OR studies)):ab,ti) OR (('cross sectional' NEAR/1 (study OR studies)):ab,ti)) OR (('clinical trial'/exp OR 'randomization'/exp OR 'single blind procedure'/exp OR 'double blind procedure'/exp OR 'crossover procedure'/exp OR 'placebo'/exp OR 'prospective study'/exp OR rct:ab,ti OR random*:ab,ti OR 'single blind':ab,ti OR 'randomised controlled trial':ab,ti OR 'randomized controlled trial'/exp OR placebo*:ab,ti) NOT 'conference abstract':it) OR (('meta analysis'/de OR cochrane:ab OR embase:ab OR psycinfo:ab OR cinahl:ab OR medline:ab OR ((systematic NEAR/1 (review OR overview)):ab,ti) OR ((meta NEAR/1 analy*):ab,ti) OR metaanalys*:ab,ti OR 'data extraction':ab OR cochrane:jt OR 'systematic review'/de) NOT (('animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp)))
Resultaten: 144

Ovid MEDLINE 19-3-2018:
(Hidradenitis Suppurativa/ or hidradenitis suppurativa.mp. or hidradenitis.mp. or acne inversa.mp. or verneuil's disease.mp. or velpeau's disease.mp.) AND (quality of life.mp. or exp "Quality of Life"/ or DLQI.mp. or Dermatology Life Quality Index.mp. or EuroQol 5D.mp. or EQ-5D.mp. or TSQM.mp. or WPAI.mp. or Skindex.mp. or Skindex-29.mp. or Short Form 36.mp. or SF36.mp. or Beck Depression Inventory-Short Form.mp. or BDI-SF.mp. or 6-item scale.mp. or Functional Assessment of Chronic Illness Therapy.mp. or FACIT-F.mp. or (Quality of Life Enjoyment and Satisfaction Questionnaire Short Form).mp. or Q-LES-Q-SF.mp. or sexual health.mp. or sexual*.mp.) AND ((meta-analysis/ or meta-analysis as topic/ or (meta adj analy$).tw. or ((systematic* or literature) adj2 review$1).tw. or (systematic adj overview$1).tw. or exp "Review Literature as Topic"/ or cochrane.ab. or cochrane.jw. or embase.ab. or medline.ab. or (psychlit or psyclit).ab. or (cinahl or cinhal).ab. or cancerlit.ab. or ((selection criteria or data extraction).ab. and "review"/)) not (Comment/ or Editorial/ or Letter/ or (animals/ not humans/)) OR (exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind$3 or mask$3)).tw. or Placebos/ or placebo*.tw.) not (animals/ not humans/) OR Epidemiologic studies/ or case control studies/ or exp cohort studies/ or Controlled Before-After Studies/ or Case control.tw. or (cohort adj (study or studies)).tw. or Cohort analy$.tw. or (Follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or Longitudinal.tw. or Retrospective*.tw. or prospective*.tw. or consecutive*.tw. or Cross sectional.tw. or Cross-sectional studies/ or historically controlled study/ or interrupted time series analysis/)
Resultaten: 105

Cochrane 19-3-2018:
#1 MeSH descriptor: [Hidradenitis Suppurativa] explode all trees 22
#2 "hidradenitis suppurativa":ti,ab,kw 102
#3 "acne inversa" 6
#4 #1 or #2 or #3 103
Resultaten: 103

Hoofdstuk Leefmaatregelen (2019)

Database	Date of search	# hits
EMBASE	20-03-2018	322
MEDLINE	20-03-2018	100
Total hits (with duplicates)		422

Embase 20-3-2018:
('suppurative hidradenitis'/exp OR 'hidradenitis suppurativa':ti,ab OR hidradenitis:ti,ab OR 'acne inversa':ti,ab OR verneuil*:ti,ab) AND ('shaving' OR 'hair removal' OR 'chemically induced disorder' OR 'adverse drug reaction' OR 'drug induced disease' OR 'mechanical stress' OR 'friction' OR 'nutrition'/exp OR 'diet' OR 'smoking'/exp OR 'obesity'/exp OR 'obesity management' OR 'morbid obesity' OR 'risk factor' OR 'risk assessment' OR 'lifestyle'/exp OR 'lifestyle modification') AND (('clinical study'/de OR 'case control study'/de OR 'family study'/de OR 'longitudinal study'/de OR 'retrospective study'/de OR ('prospective study'/de NOT 'randomized controlled trial'/de) OR 'cohort analysis'/de OR ((cohort NEAR/1 (study OR tudies)):ab,ti) OR (case:ab,ti AND ((control NEAR/1 (study OR studies)):ab,ti)) OR (follow:ab,ti AND ((up NEAR/1 (study OR studies)):ab,ti)) OR ((observational NEAR/1 (study OR studies)):ab,ti) OR ((epidemiologic NEAR/1 (study OR studies)):ab,ti) OR (('cross sectional' NEAR/1 (study OR studies)):ab,ti)) OR (('clinical trial'/exp OR 'randomization'/exp OR 'single blind procedure'/exp OR 'double blind procedure'/exp OR 'crossover procedure'/exp OR 'placebo'/exp OR 'prospective study'/exp OR rct:ab,ti OR random*:ab,ti OR 'single blind':ab,ti OR 'randomised controlled trial':ab,ti OR 'randomized controlled trial'/exp OR placebo*:ab,ti) NOT 'conference abstract':it) OR (('meta analysis'/de OR cochrane:ab OR embase:ab OR psycinfo:ab OR cinahl:ab OR medline:ab OR ((systematic NEAR/1 (review OR overview)):ab,ti) OR ((meta NEAR/1 analy*):ab,ti) OR metaanalys*:ab,ti OR 'data extraction':ab OR cochrane:jt OR 'systematic review'/de) NOT (('animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp)))
Resultaten: 322

Ovid MEDLINE 20-3-2018:
(Hidradenitis Suppurativa/ or hidradenitis suppurativa.mp. or hidradenitis.mp. or acne inversa.mp. or verneuil's disease.mp. or velpeau's disease.mp.) AND (lifestyle.mp. or exp Life Style/ or lifestyle modification.mp or lifestyle change.mp. or obesity.mp. or OBESITY, MORBID/ or OBESITY MANAGEMENT/ or exp OBESITY/ or smoking/ or smoking reduction/ or "tobacco use"/ or friction/ or stress, mechanical/ or nutrition.mp or "diet, food, and nutrition"/ or diet/ or healthy diet/ or adverse drug reaction.mp. or "Drug-Related Side Effects and Adverse Reactions"/ or chemically-induced disorders/ or "drug-related side effects and adverse reactions"/ or risk assessment/ or risk factors/ or shaving.mp. or Hair Removal/) AND ((meta-analysis/ or meta-analysis as topic/ or (meta adj analy$).tw. or ((systematic* or literature) adj2 review$1).tw. or (systematic adj overview$1).tw. or exp "Review Literature as Topic"/ or cochrane.ab. or cochrane.jw. or embase.ab. or medline.ab. or (psychlit or psyclit).ab. or (cinahl or cinhal).ab. or cancerlit.ab. or ((selection criteria or data extraction).ab. and "review"/)) not (Comment/ or Editorial/ or Letter/ or (animals/ not humans/)) OR (exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind$3 or mask$3)).tw. or Placebos/ or placebo*.tw.) not (animals/ not humans/) OR Epidemiologic studies/ or case control studies/ or exp cohort studies/ or Controlled Before-After Studies/ or Case control.tw. or (cohort adj (study or studies)).tw. or Cohort analy$.tw. or (Follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or Longitudinal.tw. or Retrospective*.tw. or prospective*.tw. or consecutive*.tw. or Cross sectional.tw. or Cross-sectional studies/ or historically controlled study/ or interrupted time series analysis/)
Resultaten: 100

Hoofdstuk Chirurgische behandeling (2019)

Database	Date of search	# hits
EMBASE	25-1-2018	210
MEDLINE	18-1-2018	188
Cochrane	18-1-2018	102
Total		500
Duplicates		99
Net hits		**401**

Embase 25-1-2018:
('suppurative hidradenitis'/exp OR 'hidradenitis suppurativa':ti,ab OR hidradenitis:ti,ab OR 'acne inversa':ti,ab OR verneuil*:ti,ab) AND (resection:ti,ab OR deroof*:ti,ab OR 'operative procedure*':ti,ab OR operation*:ti,ab OR incision:ti,ab OR exision:ti,ab OR 'surgical procedure*':ti,ab OR surger*:ti,ab OR 'surgery'/exp) AND (('clinical study'/de OR 'case control study'/de OR 'family study'/de OR 'longitudinal study'/de OR 'retrospective study'/de OR ('prospective study'/de NOT 'randomized controlled trial'/de) OR 'cohort analysis'/de OR ((cohort NEAR/1 (study OR tudies)):ab,ti) OR (case:ab,ti AND ((control NEAR/1 (study OR studies)):ab,ti)) OR (follow:ab,ti AND ((up NEAR/1 (study OR studies)):ab,ti)) OR ((observational NEAR/1 (study OR studies)):ab,ti) OR ((epidemiologic NEAR/1 (study OR studies)):ab,ti) OR (('cross sectional' NEAR/1 (study OR studies)):ab,ti)) OR (('clinical trial'/exp OR 'randomization'/exp OR 'single blind procedure'/exp OR 'double blind procedure'/exp OR 'crossover procedure'/exp OR 'placebo'/exp OR 'prospective study'/exp OR rct:ab,ti OR random*:ab,ti OR 'single blind':ab,ti OR 'randomised controlled trial':ab,ti OR 'randomized controlled trial'/exp OR placebo*:ab,ti) NOT 'conference abstract':it) OR (('meta analysis'/de OR cochrane:ab OR embase:ab OR psycinfo:ab OR cinahl:ab OR medline:ab OR ((systematic NEAR/1 (review OR overview)):ab,ti) OR ((meta NEAR/1 analy*):ab,ti) OR metaanalys*:ab,ti OR 'data extraction':ab OR cochrane:jt OR 'systematic review'/de) NOT (('animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp)))
Resultaten: 210

Ovid MEDLINE 18-1-2018:
(Hidradenitis Suppurativa/ or hidradenitis suppurativa.mp. or hidradenitis.mp. or acne inversa.mp. or verneuil's disease.mp. or velpeau's disease.mp.) AND (exp Surgical Procedures, Operative/ or exp General Surgery/ or surger*.mp. or surgical procedure*.mp. or excision*.mp. or incision*.mp. or operation*.mp. or operative procedure*.mp. or deroof*.mp. or resection.mp.) AND ((meta-analysis/ or meta-analysis as topic/ or (meta adj analy$).tw. or ((systematic* or literature) adj2 review$1).tw. or (systematic adj overview$1).tw. or exp "Review Literature as Topic"/ or cochrane.ab. or cochrane.jw. or embase.ab. or medline.ab. or (psychlit or psyclit).ab. or (cinahl or cinhal).ab. or cancerlit.ab. or ((selection criteria or data extraction).ab. and "review"/)) not (Comment/ or Editorial/ or Letter/ or (animals/ not humans/)) OR (exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind$3 or mask$3)).tw. or Placebos/ or placebo*.tw.) not (animals/ not humans/) OR Epidemiologic studies/ or case control studies/ or exp cohort studies/ or Controlled Before-After Studies/ or Case control.tw. or (cohort adj (study or studies)).tw. or Cohort analy$.tw. or (Follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or Longitudinal.tw. or Retrospective*.tw. or prospective*.tw. or consecutive*.tw. or Cross sectional.tw. or Cross-sectional studies/ or historically controlled study/ or interrupted time series analysis/)
Resultaten: 188

Cochrane 18-1-2018:
#1 MeSH descriptor: [Hidradenitis Suppurativa] explode all trees 22
#2 "hidradenitis suppurativa":ti,ab,kw 102
#3 "acne inversa":ti,ab,kw 4
#4 #1 or #2 or #3 102
Resultaten: 102

Hoofdstuk Licht- en laserbehandeling (2019)

Database	Date of search	# hits
EMBASE	23-7-2018	323
MEDLINE	23-7-2018	137
Cochrane	25-7-2018	129
Total		589
Duplicates		147
Net hits		**442**

Embase 23-7-2018:
('suppurative hidradenitis'/exp OR hidradenitis:ti,ab,kw OR 'acne inversa':ti,ab,kw OR verneuil*:ti,ab,kw OR velpeau*:ti,ab,kw) AND ('laser'/exp OR laser*:ti,ab,kw OR 'light'/de OR 'light':ti,ab,kw OR 'phototherapy'/exp OR 'photodynamic therap*':ti,ab,kw OR phototherap*:ti,ab,kw)
Resultaten: 323

Ovid MEDLINE 23-7-2018
(exp Hidradenitis/ or hidradenitis.ti,ab,kw. or velpeau*.ti,ab,kw. or verneuil*.ti,ab,kw. or acne inversa.ti,ab,kw.) AND (Lasers/ or laser*.ti,ab,kw. or Laser Therapy/ or lasers, solid-state/ or laser coagulation/ or low-level light therapy/ or phototherapy/ or exp intense pulsed light therapy/ or Light/ or light.ti,ab,kw. or ((photodynamic* or 'intense pulsed light' or 'low level light' or laser*) adj2 therap*).ti,ab,kw. or Carbon Dioxide/ or exp Erbium/)
Resultaten: 137

Cochrane 25-7-2018

#1	MeSH descriptor: [Hidradenitis Suppurativa] explode all trees	41
#2	"hidradenitis suppurativa":ti,ab,kw	129
#3	"acne inversa":ti,ab,kw	7
#4	#1 or #2 or #3	129

Resultaten: 129

Bijlage C: Evidence tabellen

GRADE tabellen

Biologicals (2017)

Tabel 15. *Summary of findings – Adalimumab 40 mg weekly vs. placebo*

Adalimumab 40 mg / wk compared to placebo for hidradenitis suppurativa

Patient or population: hidradenitis suppurativa
Intervention: Adalimumab 40 mg / wk
Comparison: placebo

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Quality of the evidence (GRADE)	Comments
	Risk with placebo	Risk with Adalimumab 40 mg / wk				
Remission duration In weeks	not assessed		not estimable		not assessed	
HS PGA Proportion of patients achieving clear / mild / minimal HS-PGA score with at least 2 grades improvement from baseline follow up: 16 weeks	39 per 1.000	**176 per 1.000** (40 to 777)	**RR 4.50** (1.02 to 19.81)	102 (1 RCT) [1]	⊕⊕◯◯ LOW [2, 4]	The proportion of patients was significantly higher in the adalimumab group (p=0.004) compared to placebo.
Change in modified Sartorius score Numeric score for each body area involved. Scale depends on number of affected areas (higher score is more impairment). follow up: 16 weeks[5]	The mean change in Modified Sartorius score ranged from **-7.5 to -15.7** points	The mean change in modified Sartorius score in the intervention group was 15,88 points lower (22,54 lower to 9,23 lower)	-	735 (2 RCTs) [1,6]	⊕⊕⊕⊕ HIGH [2, 5]	The change in modified Sartorius score was statistically significant lower in the adalimumab group compared to placebo (p<0.00001).

Change in DLQI assessed with: from baseline (higher score is more impairment) Scale from: 0 to 30 follow up: 16 weeks	The mean change in DLQI was **-1.9** points	The mean change in DLQI in the intervention group was 4,1 points lower (6,6 lower to 1,6 lower)	-	102 (1 RCT) [1]	⊕⊕⊕◯ MODERATE [2,3]	The reduction in the DLQI was significantly greater in the adalimumab group (p=0.001).
Achieving Hi-SCR Proportion of patients. Definition of Hi-SCR: ≥ 50% reduction in total AN count with no increase in abcess count and no increase in draining fistula count relative to baseline. follow up: 16 weeks [5,7]	267 per 1.000	**512 per 1.000** (419 to 624)	**RR 1.92** (1.57 to 2.34)	720 (2 RCTs) [6,7]	⊕⊕⊕◯ MODERATE [2,9]	The proportion of patients in the adalimumab weekly group was statistically significant higher compared to placebo (p<0.00001).
Achieving ≥30% reduction in pain score plus ≥1 point reduction from baseline. Proportion of patients. Numeric score (higher score is more pain) Scale 0 to10 (or 0 to100) follow up: 16 weeks[9]	235 per 1.000	**383 per 1.000** (296 to 498)	**RR 1.63** (1.26 to 2.12)	543 (2 RCTs) [1,6]	⊕⊕◯◯ LOW [2,3,11]	The proportion of patients that achieved ≥30% reduction in pain score was signifcantly higher in the adalimumab group compared to placebo (p=0.0002).
Adverse events (AE) Proportion of patients with at least one AE follow up: 16 weeks[5]	607 per 1.000	**564 per 1.000** (497 to 637)	**RR 0.93** (0.82 to 1.05)	733 (2 RCTs) [1,6]	⊕⊕⊕◯ MODERATE [2,3]	No significant difference between the groups in proportion of patients with at least one AE. Serious AE (SAE): Kimball 2012: SAE occurred in 7.8% of the adalimumab group versus 3.9% of the placebo group. No deaths. Kimball 2016: SAE occurred in 2.5% of the placebo group versus 1.6% of the adalimumab group. One patient in the adalimumab group died due to cardiorespiratory arrest.

*__The risk in the intervention group__ (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **RR:** Risk ratio; **MD:** Mean difference

GRADE Working Group grades of evidence
High quality: We are very confident that the true effect lies close to that of the estimate of the effect
Moderate quality: We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different
Low quality: Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect
Very low quality: We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect

1. Kimball AB, Kerdel F, Adams D, Mrowietz U, Gelfand JM, Gniadecki R, et al. Adalimumab for the treatment of moderate to severe hidradenitis suppurativa: a parallel randomized trial. Ann Intern Med 2012;157:846-55.
2. There is a possible risk of funding bias, because the study was funded by the pharmaceutical company of Adalimumab (Abbvie). But we decided not to downgrade for this.
3. Downgraded one level for imprecision due to small sample size.
4. Downgraded two levels for imprecision due to a very small sample size.
5. There is a risk of imprecision due to a wide confidence interval, but we decided not to downgrade for this.
6. Follow-up 12 weeks for 633 participants (Kimball 2016). We decided not to downgrade for this difference.
7. Kimball AB, Okun, MM, Williams DA, et al. Two Phase 3 Trials of adalimumab for hidradenitis suppurativa. N Engl J Med 2016;375:422-34.
8. For 87 patients this outcome was measured in a post hoc subpopulation of the studie of Kimball 2012. Presented in: Kimball AB, Sobell JM, Zouboulis CC, et al. HiSCR (hidradenitis suppurativa clinical respons): a novel clinical endpoint to evaluate therapeutic outcomes in patients with hidradenitis suppurativa from the placebo-controlled portion of a phase 2 adalimumab study. JEADV 2016;30:989-94.
9. Downgraded one level for funding bias. The pharmaceutical company of adalimumab developed the outcome measure Hi-SCR and financed the study that concluded that adalimumab 40 mg weekly led to significantly higher proportion of patients achieving Hi-SCR compared to placebo and adalimumab 40 mg every other week.
10. Follow-up 12 weeks for 447 participants (Kimball 2016). We decided not to downgrade for this difference.
11. Downgraded one level for indirectness. Kimball 2012 used 0-10 scale and only measured pain scores among patients with baseline score of 3 or higher. Kimball 2016 used 0 to 100 scale and only measured patients with baseline scores of 10 or higher.

Tabel 16. *Summary of findings – Adalimumab 40 every other week vs. placebo*

Adalimumab every other week compared to placebo for hidradenitis suppurativa						
Patient or population: hidradenitis suppurativa **Intervention**: Adalimumab 40 mg, every other week (EOW), subcutaneously **Comparison**: placebo EOW, subcutaneously						
Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Quality of the evidence (GRADE)	Comments
	Risk with placebo	Risk with Adalimumab EOW				
Remission duration In weeks	not assessed		not estimable		not assessed	
HS-PGA proportion of patients achieving clear / minimal / mild HS-PGA with at least 2 grades improvement from baseline follow up: 16 weeks	39 per 1.000	**96 per 1.000** (20 to 473)	**RR 2.45** (0.50 to 12.07)	103 (1 RCT) [1]	⨁⨁◯◯ LOW [2]	24 out of 51 patients in the placebo group and 49 out of 52 in adalimumab EOW group achieved HS-PGA clear / minimal / mild. The difference was not significant.
Change in Sartorius score from baseline Numeric score for each body area involved. Scale depends on number of affected areas. (higher score is more impairment) follow up: 16 weeks[3]	-	The mean change in Sartorius score in the intervention groups was **0.42 standard deviations lower** (1.22 lower to 0.37 higher)	-	124 (2 RCTs) [1,4]	⨁◯◯◯ VERY LOW [2,5,6]	There was no significant difference between groups. Miller used Sartorius score. Kimball used modified Sartorius score.

Change in DLQI From baseline Scale from: 0 to 30 (higher score is more impairment) follow up: 16 weeks[3]	The mean change in DLQI ranged from **-1.9 to 1.0** points	The mean change in DLQI in the intervention group was 1,61 points lower (3,86 lower to 0,64 higher)	-	124 (2 RCTs) [1,4]	⊕⊕◯◯ LOW [2]	There was no significant diffence between groups in change in DLQI from baseline.
Achieving Hi-SCR proportion of patients. Definition of Hi-SCR: ≥ 50% reduction in total AN count with no increase in abcess count and no increase in draining fistula count relative to baseline. follow up: 16 weeks	256 per 1.000	**333 per 1.000** (174 to 642)	**RR 1.30** (0.68 to 2.51)	88 (1 RCT) [7]	⊕◯◯◯ VERY LOW [2,8]	Proportion of patients achieving Hi-SCR was not significantly higher in adalimumab EOW group compared to placebo.
Achieving ≥30% reduction in pain score plus ≥1 point reduction from baseline. Proportion of patients. Numeric score (higher score is more pain) Scale 0 to100 Follow up: 16 weeks	271 per 1.000	**363 per 1.000** (198 to 658)	RR 1.34 (0.73 to 2.43)	95 (1 RCT) [1]	⊕⊕◯◯ LOW [9]	The difference was not significant between groups. Miller et al. presented a mean change in VAS pain from baseline of -13.40 in the adalimumab group compared to 3.17 in the placebo group. The difference was not significant.
Adverse events Proportion of patients with at least one adverse event follow up: 16 weeks	588 per 1.000	**635 per 1.000** (441 to 865)	**RR 1.08** (0.75 to 1.47)	103 (1 RCTs) [1,4]	⊕⊕◯◯ LOW [2]	There was no significant difference between groups. Miller et al. did not provided the proportion of patients with at least one AE, but reported the number of AE's (29 in 15 patients in the adalimumab EOW group, 4 in 6 patients in the placebo group).

*__The risk in the intervention group__ (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **RR:** Risk ratio; **SMD:** Standardised mean difference; **MD:** Mean difference

GRADE Working Group grades of evidence
High quality: We are very confident that the true effect lies close to that of the estimate of the effect
Moderate quality: We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different
Low quality: Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect
Very low quality: We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect

1. Kimball AB, Kerdel F, Adams D, Mrowietz U, Gelfand JM, Gniadecki R, et al. Adalimumab for the treatment of moderate to severe hidradenitis suppurativa: a parallel randomized trial. Ann Intern Med 2012;157: 846-55.
2. Downgraded two levels for imprecision due to a small sample size, low occurence of events in the placebo group. There is a very wide confidence interval that includes both appreciable harm and appreciable benefit.
3. Follow-up 12 weeks for 21 participants (Miller 2011).
4. Miller I, Lynggaard CD, Lophaven S, Zachariae C, Dufour DN, Jemec GBE. A double-blind placebo-controlled randomized trail of adalimumab in the treatment of hidradenitis suppurativa. Br J Dermatol. 2011;165:391-8.
5. Downgraded one level for inconsistency due to heterogeneity (I2 of 59%).
6. Kimball used the modified version of the Sartorius score. No downgrade was made for indirectness, because there are already 2 downgrades for imprecision and 1 for inconsistency.
7. This outcome was measured in a post hoc subpopulation of the studie of Kimball 2012. Presented in: Kimball AB, Sobell JM, Zouboulis CC, et al. HiSCR (hidradenitis suppurativa clinical respons): a novel clinical endpoint to evaluate therapeutic outcomes in patients with hidradenitis suppurativa from the placebo-controlled portion of a phase 2 adalimumab study. JEADV 2016;30:989-94.
8. Downgraded one level for funding bias. The pharmaceutical company of adalimumab developed the outcome measure Hi-SCR and financed the study that concluded that adalimumab 40 mg weekly led to significantly higher proportion of patients achieving Hi-SCR compared to placebo and adalimumab 40 mg every other week.
9. Downgraded two levels for imprecision due to a small sample size (n=95) and a wide confidence interval that includes both a positive and negative effect.

Tabel 17. *Summary of findings – Adalimumab 40 mg / wk vs. adalimumab 40 mg every other week*

Adalimumab 40 mg / wk compared to Adalimumab 40 mg every other week (EOW) for hidradenitis suppurativa						
Patient or population: hidradenitis suppurativa **Intervention**: Adalimumab 40 mg / wk subcutaneously **Comparison**: Adalimumab 40 mg every other week (EOW) subcutaneously						
Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Quality of the evidence (GRADE)	Comments
	Risk with Adalimumab 40 mg EOW	Risk with Adalimumab 40 mg / wk				
Remission duration in weeks	not assessed		not estimable		not assessed	
HS-PGA proportion of patients achieving clear / minimal / mild HS-PGA with at least 2 grades improvement from baseline follow up: 16 weeks	96 per 1.000	**177 per 1.000** (63 to 490)	**RR 1.84** (0.66 to 5.10)	103 (1 RCT) [1]	⊕⊕◯◯ LOW [2]	There was no significant difference in proportion of patients achieving clear / mild / minimal HS-PGA between groups.
Change in modified Sartorius score Numeric score for each body area involved. Scale depends on number of affected areas. (higher score is more impairment) follow up: 16 weeks	The mean change in modified Sartorius score was **-16.0** points	The mean change in modified Sartorius score in the intervention group was 14 points lower (40,68 lower to 12,68 higher)	-	103 (1 RCT) [1]	⊕⊕◯◯ LOW [2]	The difference between groups in change in modified sartorius score was not significant.

Achieving ≥30% reduction in pain score plus ≥1 point reduction from baseline. Proportion of patients. Numeric score (higher score is more pain) Scale 0 to100 Follow up: 16 weeks	362 per 1.000	477 per 1.000 (297 to 774)	RR 1.32 (0.82 to 2.14)	95 (1 RCT) [1]	⊕⊕◯◯ LOW [3]	There was no significant difference between groups.
Achieving Hi-SCR proportion of patients. Definition of Hi-SCR: ≥ 50% reduction in total AN count with no increase in abscess count and no increase in draining fistula count relative to baseline follow up: 16 weeks	333 per 1.000	**547 per 1.000** (333 to 893)	**RR 1.64** (1.00 to 2.68)	89 (1 RCT) [4]	⊕⊕◯◯ LOW [5,6]	A significant greater proportion of patients randomized to adalimumab weekly achieved Hi-SCR compared to adalimumab EOW (p=0.05).
Change in DLQI score from baseline (higher score is more impairment) Scale from: 0 to 30 follow up: 16 weeks	The mean change in DLQI score was **-2.8** points	The mean change in DLQI score in the intervention group was 3,2 points lower (5,7 lower to 0,7 lower)	-	103 (1 RCT) [1]	⊕⊕⊕◯ MODERATE [5]	Adalimumab weekly showed a significant reduction of DLQI compared to adalimumab every other week (p=0.01).
Adverse events (AE) proportion of patients with at least one AE follow up: 16 weeks	635 per 1.000	**704 per 1.000** (539 to 927)	**RR 1.11** (0.85 to 1.46)	103 (1 RCT) [1]	⊕⊕◯◯ LOW [3]	There was no significant difference of proportion of patients with at least one AE between groups. Serious adverse events occurred in 7.8% of the weekly group and in 5.8% of the EOW group.

*__The risk in the intervention group__ (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **RR:** Risk ratio; **MD:** Mean difference

GRADE Working Group grades of evidence
High quality: We are very confident that the true effect lies close to that of the estimate of the effect
Moderate quality: We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different
Low quality: Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect
Very low quality: We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect

1. Kimball AB, Kerdel F, Adams D, et al. Adalimumab for the treatment of moderate to severe hidradenitis suppurativa: a parallel randomized trial. Ann Internal Med 2012;157:846-55.
2. Downgraded two levels for imprecision due to a small sample size and a confidence interval that includes both appreciable harm and appreciable benefit.
3. Downgraded two levels for imprecision due to a small sample size and a confidence interval that includes both no effect and appreciable benefit.
4. This outcome was measured in a post hoc subpopulation of the studie of Kimball 2012. Presented in: Kimball AB, Sobell JM, Zouboulis CC, et al. HiSCR (hidradenitis suppurativa clinical respons): a novel clinical endpoint to evaluate therapeutic outcomes in patients with hidradenitis suppurativa from the placebo-controlled portion of a phase 2 adalimumab study. JEADV 2016;30:989-94.
5. Downgraded one level for imprecision due to a small sample size.
6. Downgraded one level for funding bias. The pharmaceutical company of adalimumab developed the outcome measure Hi-SCR and financed the study that concluded that adalimumab 40 mg weekly led to significantly higher proportion of patients achieving Hi-SCR compared to placebo and adalimumab 40 mg every other week.

Tabel 18. *Summary of findings - Infliximab 5 mg / kg versus placebo*

Infliximab 5 mg / kg for 8 weeks compared to placebo for 8 weeks for moderate to severe hidradenitis suppurativa

Patient or population: moderate to severe hidradenitis suppurativa
Intervention: Infliximab 5 mg / kg intravenously (on week 0, 2 and 6; assessment at week 8)
Comparison: placebo intravenously (on week 0, 2 and 6; assessment at week 8)

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Quality of the evidence (GRADE)	Comments
	Risk with placebo for 8 weeks	Risk with Infliximab 5 mg / kg for 8 weeks				
Time of remission In weeks	Not assessed		Not estimable		Not assessed	
Mean change in HS-PGA From baseline Follow-up: 8 weeks	The mean HS-PGA in the control groups was **4.7 points**	The mean HS-Physician global assessment (PGA) in the intervention groups was **1.8 points**	-	33 (1 RCT) [1]	⊕⊕◯◯ LOW [2]	The SD of the mean PGA score was not reported, therefore a mean difference could not be calculated. the PGA score in infliximab group was significant lower (p<0.001)
Mean change in modifiedSartorius score from baseline Numeric score for each body area involved. Scale depends on number of affected areas (higher score is more impairment). Follow-up: 8 weeks score assessed with: from baseline	Not assessed		Not estimable		Not assessed	

Mean change in DLQI from baseline Scale from: 0 to 30. Follow-up: 8 weeks	The mean change in DLQI in the control groups was **1.6 points**	The mean change in DLQI in the intervention groups was **10 points**	-	33 (1 RCT) [1]	⊕⊕◯◯ LOW [2]	The SD of the mean change in DLQI was not reported, therefore mean difference could not be calculated. There was a significant difference between groups (p=0.003).
Achieving Hi-SCR proportion of patients Definition of Hi-SCR: ≥ 50% reduction in total AN count with no increase in abscess count and no increase in draining fistula count relative to baseline.	Not assessed		Not estimable		Not assessed	
Mean change in VAS pain from baseline Scale from: 0 to 100 Follow-up: 8 weeks	The mean change in VAS pain in the control groups was **0.6 points**	The mean change in VAS pain in the intervention groups was **39.8 points**	-	33 (1 RCT) [1]	⊕⊕◯◯ LOW [2]	The SD of the mean change in VAS pain was not reported, therefore mean difference could not be calculated. There was a significant difference between groups (p<0.001).
Adverse events (AE) proportion of patients with at least one AE Follow-up: 8 weeks	Study population		**RR 1.20** (0.49 to 2.95)	33 (1 RCT) [1]	⊕⊕◯◯ LOW [2]	6 patients out of 15 patients in the infliximab group developed an adverse event during the first 8 weeks compared to 6 patients out of18 in the placebo group.
	333 per 1.000	**400 per 1.000** (163 to 983)				

*__The risk in the intervention group__ (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **RR:** Risk ratio; **MD:** Mean difference

GRADE Working Group grades of evidence
High quality: We are very confident that the true effect lies close to that of the estimate of the effect
Moderate quality: We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different
Low quality: Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect
Very low quality: We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect

1. Grant A, Gonzalez T, Montgomery MO, Cardenas V, Kerdel FA. Infliximab therapy for patients with moderate to severe hidradenitis suppurativa: A randomized, double-blind, placebo-controlled crossover trail. J Am Acad Dermatol 2009;62:205-17.
2. Downgraded two levels for imprecision, there is a small sample size (n=38). 5 patients from the placebo group dropped out within the first 8 weeks. The confidence interval of the RR for proportion of patients with at least one AE exceeds the line of possible benefit and possible harm.
3. The study was sponsored by the pharmaceutical company of infliximab.

Tabel 19. *Summary of findings: Etanercept 50 mg twice weekly vs. placebo*

Etanercept 50 mg compared to placebo for moderate to severe hidradentitis						
Patient or population: Moderate to severe hidradenitis suppurativa **Intervention**: Etanercept 50 mg twice weekly, subcutaneously **Comparison**: placebo twice weekly, subcutaneously						
Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Quality of the evidence (GRADE)	Comments
	Risk with placebo	Risk with Etanercept 50 mg				
Remission duration In weeks	Not assessed		not estimable		Not assessed	
HS-Physician global assessment (HS-PGA) proportion of patients achieving clear or mild HS-PGA follow up: 12 weeks	No exact data provided	No exact data provided	-	20 (1 RCT) [1]	⊕◯◯◯ VERY LOW [2,3]	At 12 there was no significant difference between treatment and placebo groups (p>0.99). No startpoint, endpoint and change during study was given
Mean change in modified Sartorius score numeric score for each body area involved. Scale depends on number of affected areas (higher score is more impairment).	Not assessed		not estimable		Not assessed	
Mean change in DLQI assessed with: from baseline (higher score is more impairment) Scale from: 0 to 30 follow up: 12 weeks	No exact data provided	No exact data provided	-	20 (1 RCT) [1]	⊕◯◯◯ VERY LOW [2,3]	No statistically significant difference between groups in DLQI (p=0.12 at 12 weeks). Not clear if authors ment the mean change in DL from baseline or mean DLQI
Achieving Hi-SCR proportion of patients	Not assessed		not estimable		Not assessed	

Etanercept 50 mg compared to placebo for moderate to severe hidradentitis

Patient or population: Moderate to severe hidradenitis suppurativa
Intervention: Etanercept 50 mg twice weekly, subcutaneously
Comparison: placebo twice weekly, subcutaneously

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Quality of the evidence (GRADE)	Comments
	Risk with placebo	Risk with Etanercept 50 mg				
Mean change in VAS pain from baseline	Not assessed		not estimable		Not assessed	
Adverse events (AE) proportion of patients with at least one AE Follow-up: 12 weeks	No exact data provided	No exact data provided	not estimable	20 (1 RCT) [1]	⨁◯◯◯ VERY LOW [2,3]	The only adverse drug reactions reported were mild injection site reactions. No severe adverse drug reactions were reported. No exact numbers were provided.

*__The risk in the intervention group__ (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: Confidence interval; **RR:** Risk ratio; **MD:** Mean difference

1. Adams DR, Yankura JA, Fogelberg AC, Anderson BE. Treatment of hidradenitis suppurativa with etanercept injection. Arch Dermatol 2010;146:501-4.
2. Downgraded one level for risk of bias due to risk of selection bias. The baseline characteristics were not complete and not statistically compared. No start point, endpoint and change during study were given. There is a possible risk of performance bias, the authors did not describe their randomisation, blinding and concealment of allocation methods adequately. They also did not mention whether intention to treat analysis was used.
3. Downgraded two levels for imprecision due to small sample size (n=20).

Tabel 20. *Summary of findings: ustekinumab 45 mg / 90 mg*

Summary of findings:						
Ustekinumab for hidradenitis suppurativa						
Patient or population: hidradenitis suppurativa **Intervention**: Ustekinumab 45 mg (bodyweight >100 kg = 90 kg) on week 0, 4, 16 and 28 **Comparison**: No comparison						
Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Quality of the evidence (GRADE)	Comments
	Risk with	Risk with Ustekinumab				
Remission duration in weeks	not assessed		not estimable		not assessed	
HS-PGA proportion of patients achieving a clear / minimal / mild HS-PGA	not assessed		not estimable		not assessed	
Change in modified Sartorius score (mSS) From baseline. Numeric score for each body area involved. Scale depends on number of affected areas (higher score is more impairment). Follow up: 40 weeks	-	The mean change in mSS in the intervention group was 51,94 points lower (SD 28,34) compared to baseline	-	17 (1 observational study) [1]	⊕◯◯◯ VERY LOW [2,3]	The mean mSS reduced from 112.12 at baseline to 60.18 at week 40 (46.33% improvement; p< 0.01). The MD was -51.94 (SD=28.34).

Clinical meaningfull improvement in DLQI proportion of patients DLQI scale 0-30 (higher score is more imparement) Definition of clinical meaningfull improvement is a reduction of at least 5 points follow up: 40 weeks	-	-	-	17 (1 observational study) [1]	⊕◯◯◯ VERY LOW [2,3]	7 out of 17 patients (41%) achieved a clinical meaningfull improvement in DLQI at week 40.
Achieving Hi-SCR proportion of patients. Definition of Hi-SCR: ≥ 50% reduction in total AN count with no increase in abscess count and no increase in draining fistula count relative to baseline follow up: 40 weeks	-	-	-	17 (1 observational study) [1]	⊕◯◯◯ VERY LOW [2,3]	8 of 17 patients (47%) achieved HiSCR at week 40.
Change in VAS pain assessed with: from baseline Scale from: 0 to 100 Follow up: 40 weeks	-	The mean change in VAS pain in the intervention group was 12 points lower SD 14,89	-	17 (1 observational study) [1]	⊕◯◯◯ VERY LOW [2,3]	The mean VAS pain was 58 at baseline and 46 at week 40. The MD was -12.0 (SD=14.89)
Adverse events (AE) proportion of patients with at least one AE.	-	-	-	20 (2 observational studies) [1,4]	⊕◯◯◯ VERY LOW [2,3]	Blok et al: The most common AE were headache, fatigue and upper respiratory tract infections. All events were mild and temporary. Gulliver et al: 2 out of 3 patients reported at least one AE. No serious AE occurred.

*__The risk in the intervention group__ (and its 95% confidence interval) is based on the assumed risk in the comparison group and the __relative effect__ of the intervention (and its 95% CI).

CI: Confidence interval; **MD:** Mean difference; SD: standard deviation

GRADE Working Group grades of evidence
High quality: We are very confident that the true effect lies close to that of the estimate of the effect
Moderate quality: We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different
Low quality: Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect
Very low quality: We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect

1. Blok JL, Li K, Brodmerkel C, Horvatovich P, Jonkman MF, Horváth B. Ustekinumab in hidradenitis suppurativa: clinical results and a search for potential biomarkers in serum. Br J Dermatol 2016;174:718-9.
2. Downgraded one level for risk of bias. The study did not include a controle group.
3. There is a risk of imprecision due to a very small sample size.
4. Gulliver WP, Jemec GBE, Baker KA. Experience with ustekinumab for the treatment of moderate to severe Hidradenitis suppurativa. JEADV 2012;26:911-4.

Tabel 21. *Summary of findings: Anakinra 100 mg daily vs. placebo*

Anakinra 100 mg once daily compared to placebo for severe hidradentis

Patient or population: severe hidradentis
Intervention: Anakinra 100 mg once daily subcutaneously
Comparison: placebo once daily subcutaneously

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Quality of the evidence (GRADE)	Comments
	Risk with placebo	Risk with Anakinra 100 mg once daily				
Remission duration follow up: 24 weeks		See comment		19 (1 RCT) [1]	⊕⊕◯◯ LOW [2,3]	No exact data was provided. Compared to placebo, the time till new HS exacerbation was significantly prolonged in the anakinra group. (p=0.01)
HS-Physician global proportion of patients achieving clear / minimal / mild HS-PGA.	Not assessed	Not estimable		Not assessed		
Change in Sartorius score from baseline. Numeric score for each body area involved. Scale depends on number of affected areas. (higher score is more impairment) follow up: 12 weeks		See comment		19 (1 RCT) [1]	⊕⊕◯◯ LOW [2,3]	No exact data was provided. No significant difference in Sartorius score over time between the anakinra and placebogroup.
Change in DLQI from baseline Scale 0 to 30 follow up: 12 weeks		See comment	-	19 (1 RCT) [1]	⊕⊕◯◯ LOW [2,3]	No exact data was provided. No significant difference in mean DLQI at week 12.

Achieving Hi-SCR Proportion of patients. Definition of Hi-SCR: ≥ 50% reduction in total AN count with no increase in abcess count and no increase in draining fistula count relative to baseline. follow up: 12 weeks	300 per 1.000	**777 per 1.000** (285 to 1.000)	**RR 2.59** (0.95 to 7.11)	19 (1 RCT) [1]	⊕⊕◯◯ LOW [2,3]	The study reports a significant difference in proportion of patients achieving a postive Hi-SCR between treatment groups (p=0.04) after 12 weeks of treatment. Remarkably the RR and confidence interval that we calculated did not show a significant difference between groups (p=0.06).
Change in VAS pain from baseline Scale from: 0 to 100 follow-up: 12 weeks		See comment		19 (1 RCT) [1]	⊕⊕◯◯ LOW [2,3]	No exact data was provided. There was no significant difference in VAS pain score over time between the anakinra and placebogroup.
Adverse events (AE) Proportion of patients with at least one AE follow up: 24 weeks	100 per 1.000	**333 per 1.000** (42 to 1.000)	**RR 3.33** (0.42 to 26.58)	19 (1 RCT) [1]	⊕⊕◯◯ LOW [2,3]	No statistic significant difference in adverse events between groups. No severe adverse events occurred.

*__The risk in the intervention group__ (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **RR:** Risk ratio; **MD:** Mean difference

GRADE Working Group grades of evidence
High quality: We are very confident that the true effect lies close to that of the estimate of the effect
Moderate quality: We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different
Low quality: Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect
Very low quality: We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect

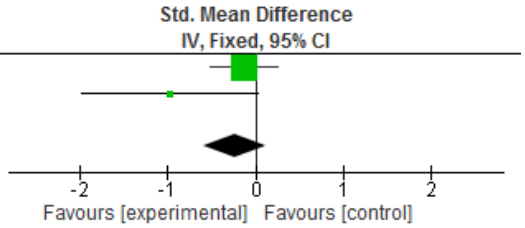
1. Tzanetakou V, Kanni T, Giatrakou S, Katoulis A, Papadavid E, Netea MG, et al. Safety and Efficacy of Anakinra in Severe Hidradenitis Suppurativa, a randomized clinical trial. JAMA Dermatol 2016;152:52-9. Doi:10.1001 / jamadermatol.2015.3903.
2. The study use per-protocol analysis and therefore there is a risk of bias. We decided not to downgrade, considering only 1 patient was lost to follow-up. The study was well set-up and performed.
3. Downgraded two levels due to small sample size (n=20; 1 patient was lost to follow-up).

Gepoolde data Adalimumab om de week versus placebo

Gemiddeld verschil in Sartorius-score ten opzichte van baseline

	Adalimumab EOW			Placebo				Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Fixed, 95% CI
Kimball 2012	-16	82.5	52	-7.5	47.3	51	87.0%	-0.13 [-0.51, 0.26]
Miller 2011	-11.27	18.9425	15	5.83	8.1282	6	13.0%	-0.98 [-1.98, 0.02]
Total (95% CI)			**67**			**57**	**100.0%**	**-0.24 [-0.60, 0.13]**

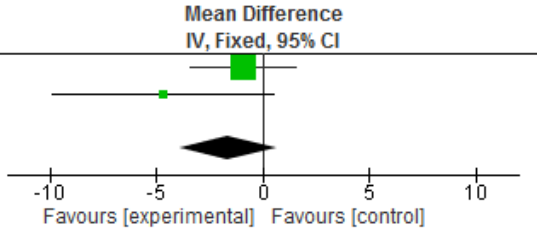
Heterogeneity: Chi² = 2.42, df = 1 (P = 0.12); I² = 59%
Test for overall effect: Z = 1.28 (P = 0.20)



Gemiddeld verschil in DLQI ten opzichte van baseline

	Adalimumab EOW			Placebo				Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Fixed, 95% CI
Kimball 2012	-2.8	6.49	52	-1.9	6.4273	51	81.2%	-0.90 [-3.39, 1.59]
Miller 2011	-3.67	9.6067	15	1	2.2774	6	18.8%	-4.67 [-9.86, 0.52]
Total (95% CI)			**67**			**57**	**100.0%**	**-1.61 [-3.86, 0.64]**

Heterogeneity: Chi² = 1.65, df = 1 (P = 0.20); I² = 39%
Test for overall effect: Z = 1.40 (P = 0.16)

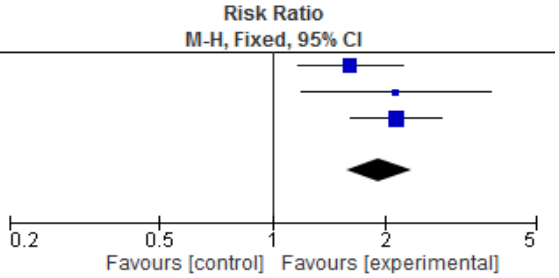


Gepoolde data adalimumab wekelijks versus placebo

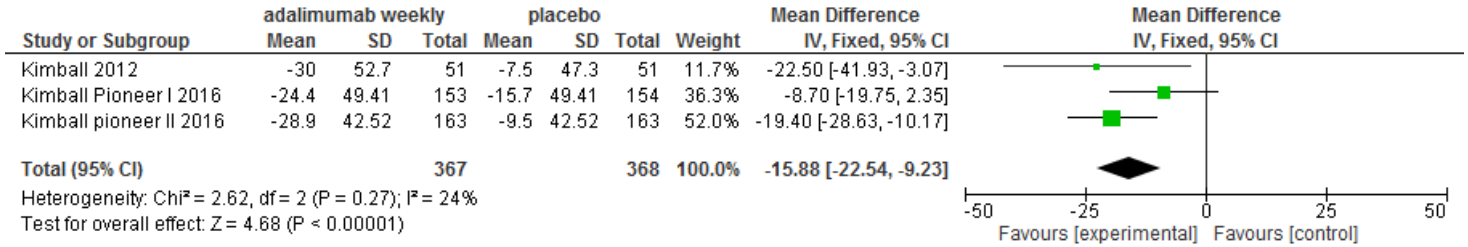
Proportie patiënten die Hi-SCR behalen

	adalimumab weekly		placebo			Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% CI
Kimball Pioneer I 2016	64	153	40	154	41.5%	1.61 [1.16, 2.23]
Kimball 2012	24	44	11	43	11.6%	2.13 [1.20, 3.80]
Kimball pioneer II 2016	96	163	45	163	46.9%	2.13 [1.61, 2.82]
Total (95% CI)		**360**		**360**	**100.0%**	**1.92 [1.57, 2.34]**
Total events	184		96			

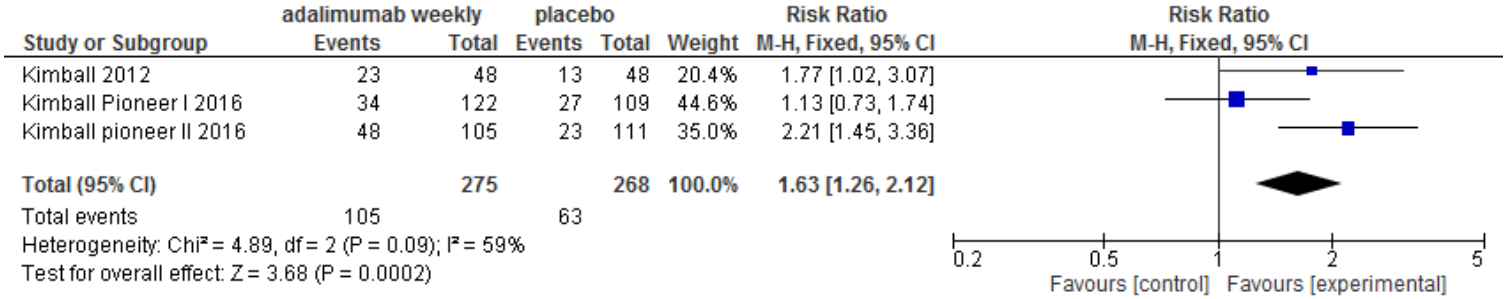
Heterogeneity: Chi² = 1.79, df = 2 (P = 0.41); I² = 0%
Test for overall effect: Z = 6.41 (P < 0.00001)



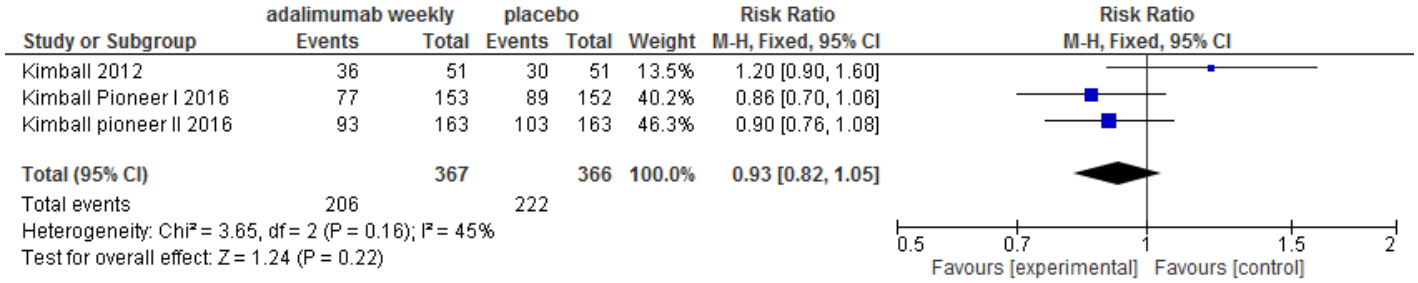
Gemiddeld verschil in modified Sartorius-score ten opzichte van baseline



Proportie patiënten die >30% reductie in pijnscore behalen èn één punt reductie in pijnscore ten opzichte van baseline



Proportie patiënten met ten minste één bijwerking



EBRO tabellen

Kwaliteit van leven (2019)

Uitgangsvragen

1. Wat is de kwaliteit van leven bij HS patiënten?
2. Welke aspecten van de kwaliteit van leven zijn het meest aangedaan bij HS patiënten?

Author (year of publication)	Level of evi de-nce	Study design	Patients (N)	Inclusion criteria	Follow-up	Outcome measures	Results	Lost to follow-up	Comments
Alavi 2015	C	prospective case series	55 patients (38 females and 17 males)	patients diagnosed with HS, and at least 18 years of age; the patients were identified retrospectively using patients' charts from Ontario community dermatology clinics.	unknown	Dermatology Life Quality Index (DLQI), Short Form 36 Version 2 (SF-36v2) health survey, and a questionnaire designed by the investigators to assess disease factors (age, time until diagnosis, duration of first symptom, number of lesions, number of episodes, patient-reported QoL [rated as a mild, moderate, or severe effect on the patient's life], and disease severity based on Hurley stage)	The average DLQI score was 10 ± 8.8 for all patients, demonstrating that HS has a 'moderate effect on patient's life'. Hurley stage, the number of lesions, and patient-reported QoL assessed in the questionnaire were significantly correlated with the DLQI score (b = 0.549, 0.285, 0.390, respectively; p = 0.000, 0.045, 0.004, respectively; a = 0.05). On the other hand, sex, age, duration of first symptom, number of episodes, time until diagnosis, and location of the lesions were not statistically significantly correlated with the DLQI score. The effect on QoL was further reflected by the SF-36v2 scores, with lower scores than normal standards for every component in Hurley Stage 3 patients.	unknown	
Alavi 2018a	C	cross-sectional study	51 patients	the ability to give informed consent, being over 18	unknown	Disease severity was assessed using the Hurly staging, the Sartorius	Forty-five of 51 patients (88%) experienced malodourous discharge. The severity of odour	unknown	A linear regression analysis was

				years of age, and having a confirmed diagnosis of HS by a dermatologist		system and Physician Global Assessment (PGA). Odour severity and frequency were collected using a self-reported measure using Likert scales ranging from 0 to 10 and 0 to 4, respectively. The odour severity variable was dichotomized using the median to classify high- and low-severity groups. Quality of life was assessed using both the Dermatology Life Quality Index (DLQI) and the Skindex-29 instruments.	significantly predicts the total Skindex score after controlling for disease severity as measured by the Hurley stage and Sartorius score (R2 = 0.39, F = 8.11, P < 0001). Odour severity was not a predictor of DLQI (R2 = 0.17, F = 2.63, P = .064) in a regression model. Patients with lesions in the areas of groin, upper thighs, and buttocks are also more likely to be in the high-odour category (Pearson χ2 = 5.66, df = 1, P = .017). Not for patients with lesions in the axilla or breast areas. Correlations between odour severity and a number of questionnaire items in Skindex-29 (items 5 and 29) and DLQI (items 8 and 9) that pertain to social and sexual functioning, in addition to an item on the experience of social isolation.		performed to assess whether odour frequency predicts quality of life as measured by Skindex-29 and DLQI separately, while controlling for Hurley stage and Sartorius score.
Alavi 2018b	B	observational cross-sectional study	50 patients with HS and 50 controls (healthy volunteers)	For the HS group included the ability to give informed consent, >18 years of age, and a diagnosis of HS confirmed by a dermatologist. The control group was composed of healthy individuals or individuals who ccompanied the patient and who were	unknown	The primary outcomes of interest were overall QoL and sexual functioning. Four validated sexual health questionnaires were used to qualitatively assess the physical and psychological aspects of sexual functioning: the Dermatology Life Quality Index (DLQI), Sexual Quality of Life Questionnaire for Use in Men (SQoLM), International Index of Erectile Dysfunction (IIEF),	Patients with HS had a significantly lower QoL as measured with the DLQI compared with the control group (p < .0001). The DLQI scores of male and female patients with HS did not differ, but they were significantly different when compared with those of the same sex control group. When compared with the male control group, male patients with HS had on average a lower sexual SQoLM (p < .0001) and IIEF scores (p = .019). Item 9, which asks patients about the extent of sexual	unknown	Unequal distribution of male (n=17) and female (n=33) patients with HS. Versus more equal distribution in control group (28 female vs 22 male)

				matched for age and sex on the basis of self-reports. Who did not have HS, or any known medical conditions, including HS comorbidities.		Female Sexual Function Index (FSFI), and Female Sexual Distress Scale – Revised (FSDS-R).	difficulties caused by the skin, was strongly and significantly correlated with FSDS-R (r = .614; p < .001) and SQoLM (r = –0.64; p = .001). There was no correlation between Item 9 and IIEF (r = –0.25; p =.25) and FSFI (r = –0.19; p = .21) Female patients had significantly higher distress related to sexual function as measured with the FSDS-R compared with healthy female volunteers (p = .002).		
Delany 2018	C	epidemiologic, non-interventional, cross-sectional (single-visit), multicenter study	A total of 15547 patients attended dermatology clinics, of which 221 had a diagnosis of HS and formed the primary population. Of the primary population, 150 eligible patients gave their consent to participate in the study and comprised the full analysis set.	Eligible patients were ≥18 years of age, diagnosed with HS by a consultant dermatologist in a hospital setting and attending a single routine dermatology clinic over a 6-month period. All patients who met the eligibility criteria were offered the opportunity to participate in the study. Any eligible patients attending the clinic who did not wish to participate in the study were recorded using the non-participating	unknown	The primary objective of the study was to determine the number of patients with HS attending dermatology clinics in a hospital setting in Ireland within a 6-month time period. Secondary objectives included the assessment of current disease status, disease characteristics, referral and treatment patterns, patient disease burden, work productivity and total activity impairment (i.e. the impact on daily activities outside of work), evidence for all of which has been lacking to date.	The WPAI questionnaire was completed by 143 patients, almost half of whom were employed at the time of the study visit (49.7%). A substantial proportion of the full analysis set were unemployed (21.3%), while others were out of work due to temporary or permanent illness disability (9.4%). Patient-reported outcomes concerning quality of life (reported by the DLQI) revealed that 91.7% of 145 responders were embarrassed/self-conscious about their skin, with 33.8% being very embarrassed/self-conscious and 93.8% reporting that the condition of their skin influenced the clothes that they wear. The majority of responders indicated that their skin had an impact on social leisure activities (n = 120; 82.8%); made it difficult to participate in sports (n = 110; 76.4%); interfered with activities at home, in the garden, or while shopping (n = 102; 70.3%); or	unknown	This is an epidemiological study. QoL is a secondary outcome measure.

				patient log, and the total number of patients who attended each clinic was tracked using the log from each site.			that the treatment of their condition had been a problem (n = 78; 55.3%). The responses to the EQ-5D-5L indicated that most patients had also felt anxious or depressed to some extent, which was consistent with responses from the PHQ-2.		
Janse 2017	C	multicentre cross-sectional survey.	Of the 916 invited patients, 7 patients refused participation, three patients were unable to participate because of Comorbidity and 573 patients did not respond to the invitation. A total of 333 patients filled out the questionnaire, which corresponds to a response rate of 36%. In additional to those 333 patients, 22 patients were included through application via the Dutch hidradenitis patients' association website.	Patients diagnosed with HS between 2007 and September 2014 A PGA score of 0 was found in 24 patients; these patients were included only in the analyses regarding disease activity. The final sample for analysis consisted of 300 patients. The questionnaires of 31 patients were returned incompletely filled in and were therefore excluded.	unknown	Three self-administered questionnaires were used for the assessment of sexual health: the Female Sexual Function Index (FSFI), International Index of Erectile Function (IIEF) and Arizona Sexual Experience Scale (ASEX). The Dermatology Life Quality Index (DLQI) is a commonly used questionnaire for the assessment of QoL in skin diseases, and a high score indicates greater impairment of QoL.	This study showed a diminished QoL and sexual health in patients with HS (Female Sexual Function Index: 21.6 ± 9.6, Sexual dysfunction (FSFI ≤ 26.55) was found in 62% of the female patients. International Index of Erectile Function: 49.7 ± 20.7, and the IIEF erectile function domain score was 20.6 ± 9.7. The proportion of male patients who had erectile dysfunction determined by an IIEF erectile function domain score of ≤ 25 was 52%. Arizona Sexual Experience Scale: 16.7 ± 5.3, The criteria of sexual dysfunction were met by 42% of the patients. The ASEX score was significantly higher in women than in men (17.4 ± 5.2 vs. 14.0 ± 4.7, P < 0.001), indicating that women had worse sexual health. Dermatology Life Quality Index: 12.5 ± 7.5). There was no significant difference in DLQI score between women and men (12.8 ± 7.5 vs. 11.7 ± 7.4, P = 0.33). Sexual health was associated with QoL in women but not in men. Female sex and late onset of HS were	unknown	

							associated with poor sexual function. Impairment of QoL was associated with anogenital involvement, early onset of HS, disease severity and disease activity.		
Kirby 2017	C	Multi-center cross-sectional survey	The final sample for the study, including patients from the US and Denmark sites, was 154 participants who submitted complete data. In the US, 96 patients from the referral centers were invited to participate, 69 (71.8%) of whom responded and 58 (60.4%) of whom submitted complete data. In Denmark, 126 patients participated, and 96 (76.1%) provided complete data.	Patients were eligible for inclusion if they were 18 years or older and had a visit for HS at 1 of the referral centers in the past 2 years (from January 1, 2014, through December 31, 2016). Patients were excluded if they declined to participate, could not read or write in English or Danish, or had a cognitive disability that would preclude their understanding of the survey questions. Only patients who submitted a complete survey were included (n = 154); thus, methods for handling missing data were not required.	unknown	The HRQOL of the participants was the outcome of interest or dependent variable in this study. It was assessed using the DLQI, (score range: 0-30, with lower scores typically indicating lower HRQOL) a widely used, validated, skin-specific HRQOL questionnaire comprising 10 items related to symptoms, embarrassment, shopping and home care, clothing, social and leisure activities, work or study, close relationships, sex, and treatment. Depressive symptoms of the participants were assessed using the HADS (score range: 0-21, with a sub score of 11 or greater indicating depression). The Brief Resilient Coping Scale (BRCS) (score range:4-20, with the highest score indicating high resilience). Patients were asked to provide sociodemographic data—age, sex, race/ ethnicity, study site, and educational attainment.	The independent variables with the highest semipartial correlations were HS severity and depression score, with HS activity independently estimating 27% and depressive symptoms estimating 10% of variation in HRQOL. For the mediation analysis, resilience score was significantly associated with depressive symptoms score (regression coefficient a = −0.21; P < .001), and depressive symptoms score (c = 0.637; P < .001) was significantly associated with lower HRQOL (c′ = 0.644; P < .001). However, both the direct association (b = 0.033; P = .86) and the indirect association (a × b = 0.007; P = .87) of resilience on HRQOL were not significant. These findings indicate that resilience did not mediate the association between depressive symptoms and HRQOL (figure 1). HS severity and depression were included in the model along with the interaction term between depression score and resilience score on the basis of the a priori hypothesis of this study. This model estimated a 58% variation in HRQOL and	unknown	The response rate cannot be calculated, however, because the number of people who viewed and decided not to participate in the survey is unknown.

							had the lowest Akaike information criterion of the 3 models. The interaction term for resilience and depression was significant and supports the moderation of depression by resilience.		
Kluger 2017	C	single-center cross-sectional study	Of 69 identified patients, 18 did not meet the eligibility criteria. Of those patients, 11 could not be contacted and 1 died. Of the remaining 39 patients, 4 declined to participate and 6 did not participate for the different reasons. Of the 29 patients who provided consent to participate in the study, 1 died before the study visit, 1 was not able to answer the questionnaires herself, and 1 did not show up for the study visit. In total, 26 patients were included in the study (fig. 1).	inclusion into the study: patients ≥ 18 years of age with HS diagnosed ≥ 6 months before study initiation with the ability to provide informed consent. All three diagnostic criteria for HS had to be met: presence of typical lesions, location of lesions in typical areas, and an evolving disease course with relapses and chronicity.	unknown	During visits patients were asked to rank 10 HS-related symptoms according to the impact on their everyday life. Patients were asked to complete a set of questionnaires (Work Productivity and Activity Impairment-Specific Health Problem [WPAI-SHP], Dermatology Life Quality Index [DLQI], Beck Depression Inventory [BDI-21], 15D Instrument [15D], HS Symptom Assessment [HSSA], and HS Impact Assessment [HSIA]) at home before the study visit.	Pain was ranked as the most bothersome HS-related symptom (mean score, 3.27). Mean DLQI score was 8.31 ± 7.39 (3.00 ± 3.77 for men and 11.63 ± 7.22 for women). The difference was statistically significant between men and women, (Mann-Whitney U test, p = 0.002). Nine patients (34.6%), all women, reported a very large to extremely large effect on their daily life (DLQI >10). The items most affected were skin symptoms and embarrassment (38.5%), problems with clothing (36.0%), and impaired sexuality (26.6%; Fig. 3 a). Higher Hurley stage at visit (p= 0.001), female gender (p= 0.018), and higher BDI-21 total score (p 0.022) were variables that significantly affected the total DLQI score in stepwise regression analysis. Mean total BDI-21 score was 10.69 ± 10.13. Women had higher scores than men (mean, 15.00 ± 10.32 vs. 3.80 ± 4.66; Mann-Whitney U test, p = 0.002). Results from the WPAI-SHP questionnaire showed that, of those employed (n = 16; 1.5%), 2 (12.5%) missed a mean of	unknown	It was a descriptive study without any control group. In addition, we cannot rule out the fact that the sample size (n= 26) may have affected our results.

							28.75 h from work during the past 7 days because of problems associated with HS. The rest of the employed patients (n = 14) reported no absence from work during the past 7 days.		
Kurek 2012	B	A prospective observational cross-sectional case-control study	44 patients (24 women, 20 men) given a diagnosis of acne inversa(AI) were included. The patients were compared with control subjects (41 subjects, (21 women, 20 men) without AI matched for age, sex, and body mass index (BMI) (matched pairs), who were selected randomly as healthy volunteers from the population. Control subjects aged 18 years or older were eligible for inclusion.	inclusion criteria: age of at least 18 years, a diagnosis of AI, and absence of any malignant, psychiatric, and/or hormonal disorders.	unknown	The Female Sexual Function Index (FSFI) contains 19 questions that describe the female sexual function in 6 domains. The International Index of Erectile Function (IIEF) contains 15 questions that were assigned in 5 domains of male sexuality: erectile function, orgasmic function, sexual desire, intercourse satisfaction, and overall satisfaction. Frankfurt Self-Concept Scale for Sexuality (FKKS SSEX)26 measures to what extend the individual has difficulties with their sexuality, how much the individual is concerned about their sexuality, if one feels attractive, and how one is able to show affection. The Dermatology Life Quality Index (DLQI)27 was developed to assess the quality of life in skin diseases.	The mean ± SD FSFI score for female sexual functioning was significantly lower in female patients with AI than in female control subjects without AI (22.1 ± 10.2 vs 29.0 ± 8.2, P = .01), demonstrating significant sexual dysfunction in female patients with AI (Fig 1, A, and Table I). The mean ± SD IIEF score for male sexual functioning was significantly lower compared with the male control subjects (42.6 ± 27.1 vs 62.6 ± 10.8, P = .01), demonstrating a higher sexual dysfunction in male patients compared with control subjects (Fig 1, B, and Table II). The FKKS SSEX score, showed significantly lower values for patients with AI compared with control subjects without AI (mean ± SD 21.4 ± 5.7 vs 27.7 ± 4.6, P < .01), suggesting higher sexual distress within the patient group compared with healthy control subjects (Fig 1, C). The mean ± SD DLQI score for female patients with AI was significantly higher than for male patients with AI (14.4 ± 6.6 vs 9.6 ± 6.9, P = .03),	unknown	Small sample size is the main limitation of this study.

							indicating a significantly lower QoL in female compared with male patients with AI (Fig 1, D, and Table III).		
Matusaik 2018	C	Cross sectional survey (?)	103 consecutive patients	unknown All patients with any pruritic/painful skin condition of any type or those receiving any anti-pruritics or pain-killers (e.g. antihistamines, immunomodulators/immunosuppressants, etc. (> 5 half-lives washout period)) were excluded.	unknown	Pruritus and pain intensity were evaluated using a visual analogue scale (VAS) and numerical rating scale (NRS) The scores for both above-mentioned tools ranged from 0 (no pruritus/pain), to 10 points (worst imaginable pruritus/pain). Pruritus was additionally assessed with a 4-item Itch Questionnaire. Dermatology Life Quality Index (DLQI) was also implemented to assess QoL issues.	Lesion-linked pruritus and pain were reported by the majority of patients during the course of the disease: 62.1% (64/103) and 97.1% (100/103), respectively. Multivariate analysis of variance revealed that the presence of pruritus did not have an impact on QoL assessed with DLQI ($p = 0.79$), nor did it show interaction with the pain in this regard ($p = 0.18$). The presence of pain was a crucial contributor ($p = 0.002$), even more relevant than disease severity ($p = 0.04$). Nonetheless, the pruritus intensity correlated significantly with DLQI ($r = 0.45$, $p = 0.004$; $r = 0.48$, $p = 0.002$ for VAS and NRS, respectively). The pain intensity correlated negatively with QoL, assessed with DLQI, and additionally with disease severity, evaluated with HSS and HSSI ($r = 0.48$, $p < 0.0001$; $r = 0.3$, $p = 0.01$; $r = 0.57$, $p < 0.0001$, respectively (the same values for VAS and NRS)).	unknown	Unknown inclusion-criteria.
Onderdijk 2013	B	Observational case-control study.	A total of 539 patients were contacted and 444 patients (82%) accepted participation by responding the questionnaires.	unknown	unknown	QoL and depression scores were assessed using the Dermatology Life Quality Index (DLQI) and the Major Depression Inventory (MDI) questionnaires.	The DLQI was significantly higher for HS patients than for the control patients, 8.4 ± 7.5 vs. 4.3 ± 5.6 ($P < 0.0001$) and correlated with Hurley stage severity scores. Mean MDI scores were significantly higher for HS patients, 11.0 vs. 7.2 ($P < 0.0001$), with 44 HS patients	unknown	Selection bias in being a hospital based sample, which restricts the generalisability of the data

			In total 211 HS patients were included in the study and 233 were dermatological control patients.				(21%) having scores indicating possible depression (≥20), compared with 26 controls (11%) (P = 0.006). However, clinically defined depression rates according to the International Classification of Diseases, 10th edition (ICD-10) criteria were not significantly higher in HS patients compared to controls (9% vs. 6%).		
Riis 2016	C	Crosssectional study	Participating patients (*n* = 294. A total of 299 (71% response) replies were received. Three replies were missing more than one variable of the EQ-5D-3L questions and were excluded for the purposes of this study.	All patients with HS (n = 421) registered at the Department of Dermatology, University Hospital of Roskilde, regardless of severity and comorbidities were contacted by post and invited to answer a questionnaire, which included the EQ5D-3L questions.	unknown	Questions regarding pain, malodour and pruritus were included to determine quantitatively whether these factors are associated with low EQ-5D index and visual analogue scale (VAS) scores. The population norms for the Danish population, provided by EuroQol, were used as reference values	A significantly decreased utility in patients with hidradenitis suppurativa was found for all age group levels, except for 65–74-year-olds. The total index score in the cohort was 0.705 (population mean 0.887) and the VAS was 62.25 (population mean 82.6). Multivariate analysis found significant associations between loss of utility and pain, malodour and pruritus ($p < 0.0001$). Patients with hidradenitis suppurativa had a significantly decreased EQ-5D compared with the background population. Malodour and pruritus were found to be associated with low index values, and pain and malodour with low VAS. Patient-reported pain and discomfort had the most negative overall effect on mean index scores.	unknown	
Schneider-Burrus 2018	B	A prospective, observational, cross-sectional	46 patients and 41 controls were included. 47 patients with HS and 45 controls were recruited. One	unknown	unknown	Disease severity was assessed by the Sartorius score. After clinical evaluation, patients and controls were asked to fill out the Frankfurt Body Concept	HS significantly reduced body image (mean FKKS score, 234.2 [5.4] in patients and 276.9 [5.7] in controls; P<.001), even when controlled for BMI. A correlation was found for the extent of body image disruption and BMI (r=-	unknown	

		case-control study	patient and 4 controls failed to complete the questionnaire and were excluded from the evaluation. Patients With HS were compared with healthy controls matched for age, sex, and body mass index (BMI, calculated as weight in kg's divided by height in meters squared) who were selected from the population.			Scale (FKKS) and Hospital Anxiety and Depression Scale (HADS).	0.589; P<.001), HADS-depression score (r=-0.619; P<.001), and HADS-anxiety score (r=-0.340; P=.03). No association was found for the body image score and the severity of HS, age at onset of disease, and duration of disease. The body contact subscale score was the only subscale score that was not different between patients with HS and controls.		
Slyper 2018	B	Retrospective cohort analysis using the Explorys database	In the Explorys database they identified 40 585 patients with HS The non-HS (control) group included 24 066 860 participants	Eligible patients had available information on age and sex and either: (i) a diagnosis of HS between September 2012 and September 2017; or (ii) clinical findings in the same period and no diagnosis of HS. Patients with a diagnosed SD prior to the index date were excluded.	unknown	To compare the incidence of SD among patients with and without HS.	The incidence of SD among the HS group was 1.7% (705/40 585), compared with 1.5% (371 560/24 066 860, P = 0.002) in those without HS. In multivariable analyses, the HS group had an approximately 40% increase in the odds of incident SD [OR 1.38, 95% confidence interval (CI) 1.28–1.48, P < 0.001]. HS was significantly associated with SD among both men (OR 131, 95% CI 1.18–1.46) and women (OR 1.45, 95% CI 1.30–1.62). However, this association did not differ significantly by sex. The association between HS and SD differed by age group (P < 0.001). Depressive disorder	unknown	

							was a statistically significant effect modifier (P = 0.03), although the difference in group-specific ORs was relatively small. Anxiety disorder was a statistically significant effect modifier (P < 0.001), although the difference in group-specific ORs was relatively small. (Table 1).		
Vangipuram 2017	C	Single-Center Retrospective chart Review	283 adult patients	unknown	unknown	Hurley stage in depression and non-depression groups Hurley stage in chronic pain and nonchronic pain groups Number of areas involved in depression and non-depression groups Number of areas involved in chronic pain and nonchronic pain groups.	Sixty-nine patients (24.4%) with HS also had a concurrent diagnosis of depression; 113 HS patients (39.9%) had a concurrent diagnosis of chronic pain. Of the HS patients with depression, 59.2% also had a coexisting diagnosis of chronic pain. The difference between Hurley scores in the depression and nondepression groups was not statistically significant (p = 0.805) The difference between Hurley scores in the chronic pain and nonchronic pain groups was marginally statistically significant (p = 0.045). The difference between the number of areas of involvement in the depression and non-depression groups was statistically significant (p = 0.013). In addition, the difference between the number of areas of involvement in the chronic pain and nonchronic pain groups was statistically significant (p = 0.001)	unknown	Methods are not fully clear in this study.
Von der Werth 2001	C	Cross-sectional survay study (?)	160 patients were contacted, of whom 114	Patients with an established diagnosis of HS were identified	unknown	The main outcome measure was the mean DLQI score. In addition to presenting descriptive	Patients had a mean ± SD DLQI score of 8´9 ± 8´3 points. The highest mean score out of the	unknown	The authors are aware that the study population

			(71%) participated	from databases of hospitals in Nottingham and Mansfield in the U.K. and Copenhagen and Roskilde in Denmark. Cases were traced back to 1993 in Nottingham, to 1995 in Mansfield and to 1997 in Roskilde. To be included as a case the diagnosis of HS had to be made by a fully trained dermatologist or had to be supported by histological evidence.		statistics on this cohort of patients, correlations between the descriptive variables and the DLQI scores were analysed.	10 DLQI questions was recorded for question 1, which measures the level of pain, soreness, stinging or itching (mean 1´55 points, median 2 points). Patients experienced a mean of 5´1 lesions per month. Patients who scored zero (n= 21) differed from those scoring 10 points or more (n= 43) in their mean age (46 vs. 39 years), age at disease onset (26´5 vs. 19´7 years) and mean number of lesions per month (1´3 vs. 6´7 lesions), but not in the mean duration of disease activity (18´2 vs. 19´4 years). The DLQI score was independent of age or disease duration (Table 2). It did correlate strongly with the number of lesions suffered per month (r2= 0´384). There was a negative correlation between the age at disease onset and DLQI (r2 = -0´227).		is by definition the more severely affected group of HS sufferers and may therefore not be representative of all patients with this disease. Other weaknesses such as the recall element and the reliance on selfreported lesions also have to be acknowledged.
Vossen 2017	C	academic hospital-based Cross-Sectional Study	In total 211 patients where included in the study. A total of 231 HS patients were screened, of whom 20 were excluded (13 had a concomitant dermatological comorbidity	Consecutive male and female patients with a physician-verified diagnosis of HS who visited the Department of Dermatology, Erasmus University Medical Center, Rotterdam, The Netherlands Patients with a limited	unknown	The aim of this study was to determine the prevalence, and explore the characteristics, of pruritus in a cohort of HS patients.	The prevalence rate of pruritus in 211 HS patients was 57.3%, with a mean NRS score of 6.1 ± 2.0. Patients with a pruritus NRS score ≥3 reported a higher level of pain (p<0.001), had more affected body areas (p<0.001), and had more severe disease according to the Hurley classification (p<0.001) compared with patients reporting a pruritus NRS score <3. Candidate predictors for patients reporting a pruritus NRS score ≥3 were Hurley stage III (OR 7.73; p = 0.003) and pain, with	unknown	In addition, serological and histological markers of pruritus were evaluated in a subpopulation, but not a outcome measure of interest so not mentioned in the results of this table.

			causing itch, 5 had a limited understanding of the Dutch language, and 2 patients declined to take part in the study).	understanding of the Dutch language, as well as patients with a concomitant skin disease that might cause pruritus (e.g. psoriasis, atopic dermatitis, chronic urticaria) were excluded.			an OR of 1.34 for each additional point on the NRS ($p<0.001$). Pruritus affected sleep and activities of daily living (ADL) in the majority of cases, with an associated modified 5-D itch score of 13.7 ± 3.6 (on a scale from 5 to 25) in 52 HS patients. Serum pruritus markers were evaluated in 24 patients in the pruritus NRS score ≥3 group (n = 121).		
Wolkenstein 2007	C	Prospective evaluation	N=61 HS patients. Results of VQ-Dermato and Skindex France where compared with results from patients with NF1 (N=128) and with other chronic diseases (N= 1161) (chronic urticaria, psoriasis, atopic dermatitis).	patients were included referred to our specialized HS consultation service.	6 months	The aim of our study was to determine factors modulating QoL impact in HS. Pain at the moment of the consultation was measured using a visual analog scale. Skin disease-specific QoL was measured using two questionnaires, VQ-Dermato and Skindex-France. VQ-Dermato is a French QoL questionnaire. General health QoL was measured using the French version of Short Form 36 (SF-36).	The measure of QoL with VQ-Dermato, Skindex-France, and SF-36 in our patients was strongly correlated ($P < .05$, Pearson's correlation coefficient > 0.65). Skindex-France measures emotion, symptoms, and function, which were used to describe QoL. The severity of HS was correlated positively with symptoms ($P<.01$, Pearson's correlation coefficient = 0.44), the duration of HS with emotion (ANOVA, $P = .05$), and symptoms (ANOVA, $P = .006$). Pain correlated with emotions ($P<.05$, Pearson's correlation coefficient >0.3), symptoms ($P = .001$, Pearson's correlation coefficient = 0.47), and function ($P = .001$, Pearson's correlation coefficient = 0.44). Patients with a continuous evolution of their disease were significantly more affected functionally than patients with an intermittent evolution (ANOVA, $P<.05$). Patients with associated pelvic and axillary and/or submammary	unknown	

							lesions had a significantly higher impact on symptoms than others (57. 6 6 20.4 vs 40.9 6 22.4, P<.05).		

Uitgangsvragen

1. Wat zijn effectieve chirurgische behandelingen voor hidradenitis suppurativa (HS) patiënten en wanneer is chirurgie geïndiceerd?
3. Welke sluitingstechnieken en postoperatieve wondzorgmaatregelen zijn er bij HS patiënten en wanneer zijn deze geïndiceerd?
4. Dient systemische therapie met biologicals te worden gestaakt vóór chirurgische interventie bij HS patiënten?

Uitgangsvraag 1: Chirurgische technieken

Author **(year of publication)** **Methode of surgery.**	**Level of evidence**	**Study design**	**Patients (N)**	**Inclusion criteria**	**Follow-up**	**Outcome measures**	**Results**	**Lost to follow-up**	**Comments**
Blok 2015 STEEP	C	clinical records-based retrospective analysis	113 A total of 482 regions were operated under general anaesthesia (363 primary operations and 119 re-operations)	All patients who underwent surgical treatment under general anaesthesia between May 1999 and January 2013 at our day care centre Patients with a BMI ≥35 kg/m2 are refused for operation in our day care centre.	43 months	*Surgical outcomes:* The percentage of remissions, postoperative general disease activity, relapses due to irradical surgery, natural disease progression and complications. *Patient-reported outcomes:* Patients' opinion about their surgical treatment was assessed with questionnaires about the best treatment they ever had and their satisfaction regarding the cosmetic and medical outcomes of the surgery.	The median diagnostic delay (patient's and doctor's delay) was 6.5 years. Remission at the operated anatomical area was achieved in 132 of 363 primary operations. Disease activity at the operated anatomical area eventually developed after 230 of 363 primary operations of which 124 were considered as natural disease progression and 106 as true relapses due to irradical surgery. Relapses occurred after 29.2% of primary operations. Women had higher relapse rates than men [odds ratio 2.85 (1.07;7.61)]. Hypergranulation of the wound was the most	unknown	Hurley stage I disease was present in 11.5% of patients, stage II in 77.9% and stage III in 10.6%. Difficulties in distinguishing Hurley stage II from stage III made it impossible to determine whether the relapse risk after surgery is affected by disease severity. This study has a selection bias as

							common complication and occurred in 7% of all operations. The median score patients attributed to the medical effect of surgery was eight of 10 (zero corresponding to very dissatisfied and 10 to very satisfied).		patients with a BMI ≥35 kg/m2 are excluded for surgery.
Deckers 2018	C	retrospective study.	120 patients Of these patients, 86 responded to the questionnaire (71.7%). Two patients were excluded because their wounds were primarily closed during the operation.	Patients who had undergone wide surgery, only patients were selected in which the wounds were left open for healing by secondary intention.	The mean follow-up time was 36.2 ± 19.1 months, with a range of 6 up to 79 months	Recurrence, impact of surgery on patients daily life. Patients satisfaction with the cosmetic results, functional properties and if they would recommend it to other HS patients.	A total of 253 surgical procedures was performed. In 95 procedures (37.6%), recurrence occurred in or within less than 0.5 cm from the scar. In 125 cases (49.4%), endured remission was achieved of whole anatomical area, whereas natural disease progression occurred after 33 procedures (13.0%). The median time of recurrence was 6.0 months [IQR: 3.0–13.0]. The genital region was most prone to recurrence (17/31, 54.8%), whereas chance of endured remission more often occurred in the gluteal/perianal region (17/65, 26.2%). Most patients were glad that they had undergone the procedure (n = 77, 91.7%) and would recommend the surgical procedure to other HS patients (n = 78, 92.9%).	unknown	

							Two-thirds of the patients were satisfied to very satisfied with the cosmetic results after the operation. However, half of the patients thought that the operation had a medium to major impact on their daily lives.		
Hazen 2002	C	Retrospective study	N = 61	Patients with longstanding HS treated with the technique of CO2 laser excision and marsupialization.	1 – 19 years	Not mentioned in paper	All patients healed with cosmetic and comfort qualities deemed acceptable to excellent in all areas (Figure 3). Secondary-intention healing took on average 8.8 weeks. There were no instances of reduced range of motion. 17 patients (28%) and 33 of the 185 treated areas (18%) experienced postsurgical hypertrophic granulation tissue appearing approximately 5 weeks after surgery. Two patients noted recurrence at the margin of previously treated areas. Three patients experienced postoperative cellulitis requiring outpatient oral antibiotics. A single patient experienced fever, leukocytosis, and rash consistent with Sweet's syndrome starting 1 month after surgery. Although most patients healed by secondary intention, one	unknown	Low recurrence rate, no definition of recurrence given.

							patient for whom suture closure was performed experienced dehiscence of the wound 2 weeks after surgery on two separate occasions.		
Kohorst 2016	C	Retrospective review of records	N = 590 consecutive surgically treated patients with HS.	Inclusion criteria were multiple inflamed lesions and a chronic disease course with both new and recurrent lesions. Patients were censored by the date of their last follow-up at the clinic or on death.	Postoperative follow-up was recorded in 554 of 590 patients (93.8%) and was ranging from 1 to 6961 days (mean, 632.9 days).	At each follow-up visit, the following data were abstracted: date, whether the wound was healing or healed, complications, and recurrence of HS at the operative site. Postoperative complications within the first 30 days were defined as any deviation from the normal postoperative course, regardless of whether treatment intervention was taken. Recurrence was defined as any newly described disease adjacent to or within the previously operated area. Repeat procedures performed on recurrent HS lesions in the original surgical site were recorded.	Procedure types were excision (405 [68.6%]), unroofing (168 [28.5%]), and drainage (17 [2.9%]) treating disease of perianal/perineum (294 [49.8%]), axilla (124 [21.0%]), gluteal cleft (76 [12.9%]), inframammary (12 [2.0%]), and multiple surgical sites (84 14.2%]). Postsurgical complications were documented in 2.5% (15/590) of operations within the first 30 days. Postoperative recurrence curves demonstrated most of the events within the first 4-year postoperative period. With recurrence stratified by age decades, younger surgical patients had significantly higher recurrence rates than older patients ($p = .02$). Similarly, recurrence stratification by the number of distinct surgical sites revealed higher recurrence rates in patients with multiple surgical sites ($p < .01$).	unknown	

							Operative location, disease severity, gender, and operative extent did not influence recurrence rate.		
Lapins 2002	C	Retrospective follow up study	34	unknown	Mean follow up time was 34.5 months	For the purpose of assessment of the clinical postoperative course, persistent or recurrent HS, and late sequelae after discharge, the patients were asked in a letter to take part in a telephone interview including questions on healing time, recurrences, and satisfaction.	The mean healing time was about 4 weeks (range, 3-5 weeks). During follow-up, 4 of the 34 patients had recurrences at the surgical site, that is, locoregional HS. Thirty had no recurrences in the treated area, but in 12 cases de novo suppurating lesions, separated from the initial surgical site by >5 cm, developed. Twenty-five patients had flares of HS lesion(s) in an area other than the treated site. Eight had no recurrences.	unknown	CO2 laser excision.
Mikkelsen 2015	C	Retrospective follow up study	N = 69 Patients were categorized into 2 groups: above and below 45 years of age. The authors chose this cutoff value because studies have shown that HS tends to improve later in life.	69 consecutive patients who had undergone CO2 laser surgery at the authors' clinic from September 2009 to November 2013. Recently, operated patients who had not re-epithelized at the time of interview were excluded from the study (n=1).	Patients were followed for a mean of 20.6 months postoperatively (range: 1.0–47.0 months).	Patients were asked if they had recurrence of HS activity within the borders of the scar, and if that was a case when such recurrence had occurred. To determine satisfaction with the procedure, patients were asked to rate their current disease activity in the operated area on a 5-step scale	A total of 17 of the 58 patients (29.3%) reported recurrence of HS in the treated area. The patients percentages with recurrence free survival was 80.53% after 1 year, 73.23% after 2 years, 52.32% after 3 years. Patients were generally satisfied with the postoperative results, 55 of 58 patients (95%) reporting a small (n = 11) or great improvement (n = 44). Only 3 of 58 (5%)	N = 11 N = 1 was excluded because of no re-epithelization at time of interview Rest unknown cause of loss of follow-up.	The size of the defect left by the operations was not recorded, and thus not included for the purposes of this study.

							reported unchanged status, all of whom had recurrence in the treated area. None reported worsening of the condition.		
Posch 2017	C	Retrospective analysis	74	HS Hurley grade III patients, between the ages of 18 and 99 years with HS in the axillary and/or inguinogenital/gluteal areas	The majority of patients (n = 58) were followed for longer than 1 year, with a median follow-up period of 4.72 years, allowing for a long-term outcome assessment	Dermatology Life Quality Index responses, disease duration, recurrence, previous therapies, postoperative complications, and satisfaction with cosmetic results.	Most patients had inguinogenital/gluteal disease (68.9%, P <.001). Involvement of both the axillary and the inguinogenital/gluteal areas were pronounced in male patients (P = .018). None of the patients was treated with tumor necrosis factor-a inhibitors. Most patients (71.6%) had a disease history of >5 years at the time of presentation and multiple unsuccessful attempts with systemic and local therapeutic interventions. Wide local excision improved Dermatology Life Quality Index scores from initially 27.89 to 5.31 after surgery (P<.001), independent of localization (P = .195). Forty-seven percent of patients had postoperative complications, most frequently pain and scarring. The vast majority of patients (70.3%) were satisfied with the cosmetic results.	unknown	

Ritz 1998	C	Retrospective analysis	31 6 abcess drainages, 14 limited and 11 radical wide excisions. Primary closure 2 patients after limited resection.	Medical records, including outpatient files, of all patients who underwent surgery in our Department between 1976 and 1997.	The mean follow-up period after initial surgery was 72 months (range 3–238 months).	To assess the clinical course after discharge, all patients and their general practitioners were interviewed by questionnaire, and patients underwent physical examination documenting the signs, location, therapy, and clinical course of persistent or recurrent HS and late sequelae after surgery. Recurrence was defined as persistent or newly developed signs of HS appearing in the same area which made a reoperation necessary.	The postoperative complication rate was low (6.5%), with one hemorrhage after radical wide excision requiring reoperation and one deep venous thrombosis. HS recurred in all 6 patients who had undergone drainage procedures only. After limited excision and radical wide excision the recurrence rates were 42.8% (n=6) and 27% (n=3; P<0.05). The disease-free interval differed between procedures as follows: HS recurred after a median interval of 3 months after abscess drainage (range 1–4 months), 11 months (range 2–24 months) after limited, and 20 months (range 15–35 months) after radical wide excision (P<0.05). The location of HS also had an effect on the recurrence rate. There was only one case of recurrence (16.6%) in axillary and perianal HS. All other recurrences were in cases of inguinal or genital HS (P<0.05).	unknown	
Van der Zee 2010	C	open trial	88 deroofed lesions in 44 consecutive patients	unknown	5 years	Age, age at onset of the disease, sex, body mass index, treated area, length of	Fifteen of 88 (17%) treated lesions showed a recurrence after a median of 4.6 months. In all, 73	7 Of 44 patients,	

						the created defect, patient-reported healing time, complications, and recurrences at follow-up were recorded and monitored.	treated lesions (83%) did not show a recurrence after a median follow-up of 34 months. The median patient satisfaction with the procedure rated 8 on a scale from 0 to 10. Of the treated patients, 90% would recommend the deroofing technique to other patients with HS. One side effect occurred in the form of postoperative bleeding. No infections were observed, nor was impairment of movement caused by postoperative scarring. The median satisfaction rate for deroofing was 8.0. Patients without a recurrence evaluated the technique higher than patients with a recurrence (8.0 vs 7.0, respectively). Of treated patients, 90% would recommend the deroofing technique to other patients with HS (Table III). Interestingly, patients with recurrence recommended the procedure almost as frequently as patients without recurrence (92% vs 82%).	37 (84%) were contacted and interviewed by telephone; 7 patients could not be traced by any means and were considered lost to follow-up.	

Uitgangsvraag 3: Sluitingstechnieken en postoperatieve wondzorg

Author **(year of publication)** **Methode of surgery.**	**Level of evide-nce**	**Study design**	**Patients (N)**	**Inclusion criteria**	**Follow-up**	**Outcome measures**	**Results**	**Lost to follow-up**	**Comments**
Aksakal 2008	C	prospective study	12 A total of 30 lesions were treated; 6 of 30 were localized in the axilla and 24 in the inguinal region.	Patients with HS with hurley grade I (n=9) or II (n=3). Only previously untreated patients were included. Without comorbidities that would affect the wound healing.	2 months	Not mentioned in paper	In 10 of 12 (83%) patients, and in 26 of 30 (86%) lesions, cure was observed in a mean of 16 days (range 15 to 21 days). In this group, the lesions healed leaving a slightly depressed scar. Our method achieved success in 20 (100%) lesions of all patients with Grade I and in 6 of 10 (60%) lesions in Grade II patients. Four lesions in 2 patients with Grade II became infected and required a short course of antibiotic therapy. Therefore, these four lesions were considered as failure in treatment.	0	Only early disease Hurley grade I or II.
Alharbi 2012 .	C	Retrospective study	32 50 operative procedures in 5 anatomical sites, 23 axilla, 17 inguinal and 8 Perianal/ perineal area, 1	patients with chronic inflammatory moderate to severe hidradenitis suppurativa (Hurley grade II and III) treated in our hospital	Mean follow-up time is 24 months	Not mentioned in paper	Twenty eight Patients (87,5 %) showed no complications after surgery. The average time of hospital stay period was 5 days. After follow up 26 Patients (81,25 %) showed no recurrence. Recurrence rate was observed in 6 patients	unknown	

			gluteal region and 1 trunk region	from 2003 to 2009			(18,75 %) and was seen in patients with Hurley grade III, 5 out of these 6 patients were smokers (83,33 %).		
Balik 2009	C	Retrospective review	15 Total number of 21 operations: In 11 patientes (73.33%) the wounds were left open for secondary healing. 2 patients (13.3%) underwent primary wound closure by rotation flaps. Delayed skingrafts were applied tot the remaining 2 patients (13.3%).	Patients diagnosed with stage III extensive HS located in the perineal/perianal, inguinal, and gluteal areas, who were treated in the University of Istanbul, Istanbul Faculty of Medicine, Department of General Surgery between January 1990 and July 2003	mean follow-up period of 5 years	Not mentioned in paper	The mean time for complete wound healing of the patients treated by total excision and healing with secondary intention was 12.2 (range, 9.5–22) weeks. The complete healing period for the patients in the total excision and rotation flap group was 2 weeks. In the delayed skin grafting group, complete wound healing took a total of 8 weeks.	unknown	
Bohn 2001	C	crossectional/ prospective?	138 Altogether 367 affected sites were excised; most cases required skin grafting.	unknown	Postoperative follow-up was eight years (range 0–21).	Not mentioned in paper	There were no serious surgical complications. In 38 patients (33%) the disease recurred to some degree. When a recurrence occurred a new lesion developed usually some cm's away from the previous excision (in 30 patients; 78%), but sometimes at the edge of the scar (in 8 patients; 22%). No patient relapsed in the skingrafted sites. 14 patients (10% of all cases) required	(22) Two patients Had died, five could not be traced, and 15 failed to reply the questionnaire.	

							reoperation. Forty (34%) patients developed temperate lesions at areas other than the operation sites but they did not require further surgery. Six patients had a subsequent operation to improve the aesthetic result. Ninety-six of the patients (83%) answered that they would recommend the procedure to other patients under similar circumstances.		
Buimer 2008	C	prospective and randomized study	200 76 patients underwent surgical excision with primary closure (PC), and 124 PCs over a gentamicin-collagen sponge (GC).	In accordance with the patient's views, we selected for treatment the symptomatic lesions, i.e., those with discharge, inflammation, infiltration, or suspected abscesses.	3 months	After one week and 3 months the wounds were described and characterized: dehiscence, dehiscence and infection, seroma and/or infection. Furthermore, the local recurrence rate was scored after 3 months.	One week postoperatively there were significantly fewer complications in the GC group. Overall, 59% of the patients treated with gentamicin had no complications after 1 week, compared to 47% in the group without antibiotics (p<.03). Three months postoperatively, there was no statistical difference in observed complications (p = .14). The mean duration of wound healing was 21 days in the GC group of patients, compared to 24 days in PC group (p = .078). In the GC group, 65% of the patients were recovered within 2 months, compared with 33% in the PC group. Treatment with gentamicin had no	unknown	The imbalance in randomization was due to early cessation of the study.

							influence on the local recurrence rate after 3 months; this was comparable in both groups, 42% versus 40% (p = .8).		
Burney 2017	C	retrospective review	122 245 operations, patients underwent from 1 to 10 procedures, 61 patients (50%) underwent two or more procedures; and 26 (21%) underwent three or more.	unknown	5.6 years (median follow-up)	Specific data abstracted included patient age, weight, admission, length of stay, wound size, type of wound care, number of post-op visits, time to heal, and recurrence.	Wound sizes at operation ranged from quite small to over 1500 cm2. A total of 197 wounds healed by secondary intention: 83 of these (median size 159 cm2) were left completely open at the time of surgery; 117 (median size 100 cm2) were partially closed. A total of 30 wounds (median size 38 cm2) were closed primarily; 15 (median size 196 cm2) were closed by skin graft. Patients undergoing 139 procedures were admitted to the hospital for the initial wound care. Their median combined total wound size was 160 cm2; length of stay was 5.5 days; and median time to heal was 60 days. In total, 106 procedures were ambulatory; median wound size was 30 cm2; and median time to heal was 40 days. Recurrent or new disease was common, with some patients requiring multiple procedures over many years to maintain control of symptoms. Although wound healing	unknown	This report is spanning a period of 35 years. Most of the data analyses were done by type of operation and location of disease, rather than by patient, since most patients had more than one site of disease and underwent either more than one operation or operations at more than one site over a period of years.

							can take up to several months, patients quickly learned how to care for themselves and were usually pain-free after the first two or three weeks.		
Chen 2011	C	retrospective review	11 with 24 regional disease sites treated	unknown	?unknown	Not mentioned in paper	The total percentage estimated surface area of graft take was approximately 75%, excluding 1 patient with total graft failure due to patient compliance issues. Of the 24 areas grafted, only 5 required small areas of regrafting (4 of the regrafts were in a single patient) again with the exception of one patient, and in each case the second graft had 100% take. Control of locoregional disease does not preclude isolated abscess formation in sites adjacent to or distant from the grafted areas. However, these recurrences are usually not incapacitating and are treated with antibiotics, local incision, and drainage.	unknown	
Chen 2014	C	retrospective chart review	a total of 60 cases in 27 patients Equal numbers of cases were performed without internal vacuum-assisted closure (30 cases in 15	only cases performed by the same surgeon and senior author (D.P.O.) at the Brigham and Women's Hospital, which included patients	a mean follow-up time of 2.3 months (range, 0.4 to	Collected data included: demographic data on sex, age, surgical site, and clinical risk factors (i.e., smoking status, hypertension, diabetes mellitus, steroid use, and immunosuppression).	Patients managed with internal vacuum-assisted closure (IVAC) had wounds on average four times larger in area than patients managed without IVAC: Patients with IVAC had significantly larger	unknown	

			patients) and with internal vacuum-assisted closure (30 cases in 12 patients).	treated both with and without internal vacuum assisted closure.	9.8 months)	We also collected outcome data on days hospitalized after surgery, time to healing, time of total followup, and any postoperative complications.	average defect sizes: 123 cm2 in the IVAC group (n = 30) versus 32 cm2 in the no–IVAC group (n = 30) (p = 8.80E-06). In both groups, all wounds were eventually closed primarily. The average time from the date of surgery to the date of epithelization without recurrence was not significantly different between the IVAC (2.2 months) and no–IVAC groups (2.7 months; p = 0.39). At an average follow-up time of 2.3 months, all patients with IVAC had no recurrence of their local disease.		
Egemen 2013	C	review of cases	11 patients with 13 local islanded perforator flaps	unknown	mean follow-up was 11.5 months range, 4 to 24 months	The data for age, sex, anatomic location, flap size, flap type, complications, and duration of follow-up were recorded (Table 1).	Flap dimensions ranged from 11 cm ± 6 cm to 15 cm ± 13 cm. Patients with bilateral disease underwent surgery in separate sessions. Among 13 flaps, 1 was interpolation type, 4 were rotation types, and 8 were advancement types. Donor areas of the 12 flaps were closed primarily. The donor area of the largest flap (15 cm ± 13 cm) in the series was partially skin grafted. There were no total flap losses in the postoperative period. One patient who had undergone	unknown	

							reconstruction with TAP flap had amarginal necrosis due to venous congestion at the distal part of the flap. Two patients developed wound infections. During follow up there were no recurrences of HS lesions. None of the patients requested a revision of the donor or recipient area.		
Humphries 2016	C	retrospective case review	17 These patients underwent 23 separate surgical encounters, five with excision of multiple areas.	All patients aged 18-85 years who underwent surgical treatment of HS with subsequent wound healing by secondary intent with topical antimicrobial therapy by five plastic surgeons over a 14-year period (January 1, 2000 to January 1, 2014).	The mean follow-up was 1.02 years with a median of 6 months ranging from 1.2 months to 5.25 years.	length of HS diagnosis, previous surgical and medical interventions for HS, symptoms at the time of surgical intervention, anatomic sites affected by HS and subsequently surgically treated at our institution, size of wound after surgical excision, method of wound healing, length of wound healing time, and postoperative or wound-healing complications.	Seventeen excisional procedures were conducted on the upper half of the body (axillary, breast) and 11 on the lower half (inguinal, perineum, perianus, and abdomen). Two patients developed HS recurrence adjacent to the surgical site (one requiring reexcision and the other treated with topical therapy), whereas two developed HS flares at distant nonsurgical sites managed medically. The mean follow-up was 1.02 years with a median of 6 months ranging from 1.2 months to 5.25 years. Complete wound healing ranged from 8 weeks to 16 months, with limited range of motion (ROM) in two patients.	unknown	Patients with missing data remained included in the study, but missing data from these patients were excluded from calculated averages.
Maeda 2015	C	retrospective review	18	unknown	mean follow-up was 61.3	Severity (Hurley classification system), skin-graft thickness, the	Five cases were classified into severity group I, 12 cases into severity group II and one	unknown	

					months (range, 17-113 months)	need for an additional normal skin graft, histological findings and recurrence rate were investigated.	case into severity group III. The range of skin-graft thicknesses was 0.013-0.020 inches. An additional donor site was unnecessary in 10 cases (three cases in group I (60%) and seven cases in group II (58.3%)). Histological examination indicated that a buried epidermal cyst could cause chronic gluteal hidradenitis suppurativa recurrence. None of the patients experienced severe skin contracture limiting lower-limb motion, or underwent an operation for releasing contracture. No recurrence was noted in any case at the surgical site during follow-up.		
Mutaf 2014	C	Case report analysis	16	unknown	A mean follow-up for 36 months (6 months-5 years)	Not mentioned in paper	In all patients, a successful tension-free and durable closure of the defect was obtained without any difficulty. Except for 2 patients who had tip necrosis, all patients healed uneventfully. There was no patient with infection and wound dehiscence. The mean follow-up time revealed no recurrence and an aesthetically acceptable scar formation in all patients. In the long-term, there was no	unknown	

							recurrence and no patient required additional surgery.		
Van Rappard 2012	C	retrospective single-centre study	57 In total 92 local incisions with primary closure were performed.	Consecutive HS-patients treated between 2005 and 2010 in the Department of Dermatology with local surgery and primary wound closure If the excisions were subsequently managed by primary closure, patients' data were included in the study.	The follow-up period ranged from 3 months to a maximum of 84 months (average 14 months).	The immediate post-operative results were extracted from the medical records. For the long-term follow-up, all patients were contacted to fill out a questionnaire. The questionnaire included general questions on disease duration, smoking habits and previous treatments. Pain during the procedure was recorded using a pain score ranging from 0 to 10. The clinical course was evaluated on post surgical pain, occurrence of complications, time required for resuming daily activities, time required for total wound healing and recurrence rate, an overall judgment of cosmetic results of the postoperative sites and if they would recommend similar procedures to other patients with comparable conditions.	Postoperative pain, requiring pain medication, was present after 61% of the surgical interventions. The average duration for patients for resuming daily activities was 1.5 weeks. The average time required for total wound healing was 3.2 weeks. The overall rate of postoperative complications was 29%, mostly minor complications like suture dehiscence, postoperative bleeding and postoperative infection. In none of the cases, hospitalization was required. Successful treatment, without any recurrence, was accomplished in 66% of the cases (Figs 1, 2). The average follow-up duration without recurrence was 27 months. Recurrence within the operated fields occurred in 23% of the cases, after an average duration of 10 months. In 11% of the cases, de novo suppurating lesions	unknown	

							appeared near the initial sites of surgery, after an average duration of 5 months.		
Romanowski 2017	C	Retrospective Review	98	unknown	The mean number of follow-up clinic visits was 4.2 ± 3.7 visits within 1 year of surgery.	Outcomes included graft loss (estimated from percentage of total wound) and regrafting requirements. Graft loss was recorded at the first postoperative dressing removal. Length of stay (LOS) and number of follow-up visits within 1 year of surgery were also noted.	All 142 grafts were split-thickness skin grafts. The most common time between procedures was 4 days (mean time 4.59 days). The mean area grafted was 416 ± 500 cm2 (90–3400 cm2). There were 74 axillary-only debridements with 2 primary closures and 72 grafting procedures. The Length of stay (LOS) varied with the location of the disease and performance of grafting during the admission, with the mean LOS being 6.3 ± 5.6 days. Patients with buttock and multiple-site procedures had the longest LOS at 9.3 ± 8.3 and 9.5 ± 7.0 days, respectively. Slightly more than half of the patients had 100% graft take (75, 51%). No patients who had less than 30% graft loss underwent a regrafting procedure. Of the 18 patients who had >30% graft loss, only nine (9%) patients required regrafting. At 30 days after the initial procedure, 94.7% of all wounds were fully grafted and closed.	unknown	

Schmidt 2015	C	prospective	35 posterior arm flaps were used in 24 patients Defects were predominately due to HS (n=31).	Between 2008 and 2013, all patients receiving a posterior arm flap for regional reconstruction around the axilla were entered in a prospectively maintained database.	unknown	Patient data, surgical details, complications and the need for revisional procedures were recorded.	Average flap dimension measured 8x12 cm. However, flaps as big as 12x16 cm were elevated still allowing for primary closure in all of our patients. Major wound complications such as total or partial flap necrosis were not encountered in our series. In one patient initial venous flap congestion was observed, which eventually led to flap tip necrosis. In two further patients an additional VY-advancement flap was needed for closure of the pronounced defect. Minor complications included partial superficial wound dehiscence (n=4) and superficial wound infection (n=1), all of which were successfully managed with a conservative wound regimen.	unknown	20 patients with HS, with a total of 31 defects due to HS. Other 4 due to burn contracture, thoracic wall defect, metastatic disease or sarcoma. No results of disease activity/recurrence of HS.
Soldin 2000	C	retrospective analysis	59 (94 axillae) The three types of excision performed were: 1. Limited local excision. Only the obviously diseased tissue is excised. Usually this is within the area of	all patients who presented for surgical treatment of chronic axillary hidradenitis. The study was undertaken in two centres: Groote Schuur Hospital, Cape Town and Mount Vernon	The follow-up ranged from 4 to 122 months (mean 16 months).	Particularly, we surveyed the outcome regarding extent of excision and method of closure.	26 axillae had limited local excision. 39 axillae were treated by excision of all hair bearing skin. There was a significant reduction in recurrent disease when excision of all the hair bearing skin was performed (P = 0.04, Fischer's exact test). 29 axillae had wide local excision. There was no	unknown	

			the hair bearing skin. 2. Hair bearing skin excision - the area of axillary tissue containing terminal hair is excised. The excision was down to axillary fascia. 3. Wide local excision - all axillary hair bearing tissue and an additional 2 cm margin of surrounding skin was emoved. The excision was also down to axillary fascia.	Hospital, Middlesex.			significant difference in disease recurrence between excision of all the hair bearing skin and wide local excision (P = 0.18, Fischer's exact test). Of the wounds closed primarily (35), there were complications in 7 (these were minor wound breakdowns that healed with conservative care). All these complications occurred in patients that had had excision of all the hair bearing tissue. There were 16 axillae closed with split thickness skin graft. Complications included incomplete graft take in 6 (1 requiring regrafting), and 5 axillary wound contractures. 43 axillae were closed using a flap. The flap was lost in two patients (both cutaneous). Two patients complained of unsatisfactory scars. (one needing revision), and minor wound breakdown occurred in 9 patients that healed with conservative care (regular dressings).		
Tanaka 2001	C	Case review	19 23 sites of HS: Nine sites were limited and 14 sites were severe.	patients with chronic inflammatory skin lesions treated surgically in our hospital from	The postoperative follow-up period	Not mentioned in paper	The lesions were divided into two groups: The limited group (9 sites) was comprised of mild lesions, which appear	unknown	

				1977 through 1999, with a follow-up of at least 20 months	ranged from 20 to 60 months		isolated and have limited abscesses without sinus tract formations. The severe group (14 sites) was compromised of severe lesions, which included diffuse, multiple abscesses with severe sinus tract formation and fibrosis. After resecting the lesion, the defect was covered with a split-thickness skin graft (4 sites were limited, 9 sites severe), a musculocutaneous flap (5 sites severe), primary closure (4 sites limited), and a local skin flap (one site limited). In comparison between both groups, the rate of recurrence in the severe group was significantly higher (p = 0.0480. In the severe group there was no significant difference in the follow-up period between the cases covered with split skin graft (mean, 36.0 months) and those covered with a musculocutaneous flap (mean, 39.6 months).		
Unal 2011	C	prospective study	12 11 SGAP and 6 IGAP flaps	Only patients with gluteal and perineal/perineal region involvement were included in this study.	The mean postoperative follow-up period was 20	Data of each patient included age, sex, disease localization, duration of symptoms, comorbidities, size of defect after excision, perforator flap chosen,	Size of skin defect after excision of lesions ranged from 7x9 cm to 23x40 cm (mean 13x19 cm). A total of 11 SGAP flaps were performed, Only three of the SGAP flaps were advancement	unknown	

					months (range 8–36 months).	complications, and postoperative follow-up.	type and eight of them were propeller flaps. Six IGAP flaps were used in four patients. Four of these flaps were advancement flaps and two were propeller flaps. There was one suture detachment in one patient that needed secondary revision. One SGAP flap failed because of hematoma formation and venous congestion. The defect was grafted with a split thickness skin graft. The mean hospitalization time for patients was 6 days (range 3–10 days). There was no recurrence of HS lesions in any of the patients during the course of follow-up period.		
Wormald 2014	C	prospective study	27 Those patients with Hurley's stage III (27) with extensive disease or recurrent disease were divided into two groups defined by their treatment: TDAP reconstruction and SSG reconstruction.	all consecutive patients undergoing surgical treatment for axillary HS at the Department of Plastic and Reconstructive Surgery of the Norfolk and Norwich University Hospital in Norwich, UK	Follow-up evaluation was conducted at 3, 6 and 12 months after surgery.	Operative variables that were measured include: operating time, hospital stay, complications, recurrence of disease, total number of surgical procedures, follow-up and return to preoperative activity. The dermatology life quality index (DQLI) questionnaire and a visual analogue scale for pain and discomfort were completed by	The mean hospital stay was 4.7 days for TDAP flap and 6.7 days for SSG. There was a significant difference in the mean recovery time, defined as a full return to pre-operative activity, between the two groups mean recovery time was about 5 weeks for TDAP group and 14 weeks for SSG group (p=0.03). The SSG group had an average of 5.2 follow-up clinic appointments	unknown	

			There was no randomisation and the decision on type of reconstruction was based on patient's preference following a full informed consent.	from September 2008 to September 2012. patients with Hurley's stage III with extensive disease or recurrent disease		patients before surgery and at 12 months post-operatively to determine effect of the surgical treatment on quality of life	for dressing and wound review compared to the TDAP flap group who had significantly fewer appointments with an average of 1.6 follow-up (p≤0.005). The TDAP group had significantly fewer complications than the SSG group (p≤0.005). DLQI and VAS results showed improvement in patients' quality of life across both groups. The TDAP group showed significantly better improvements in quality of life compared to those who underwent SSG, with a mean reduction in DQLI of 23.1 points compared to 19.3 points (p=0.02).		

Uitgangsvraag 4: Chirurgisch interventies en biologicals

Author **(year of publication)** **Methode of surgery.**	**Level of evide-nce**	**Study design**	**Patients (N)**	**Inclusion criteria**	**Follow-up**	**Outcome measures**	**Results**	**Lost to follow-up**	**Comments**
DeFazio 2016	C	Retrospective review of medical records	21 patients underwent radical resection and delayed primary closure for the management of	unknown	Patients were followed for an average period of 18	Primary outcomes included rates and timing of disease recurrence and/or disease progression. Recurrence was defined as persistent	For patients in the combined therapy cohort, reoperation for local recurrence was required in 4 of 29 previously treated regions (19%). In	unknown	No biologic treatment was given before or during surgical therapy: *Biologic therapy was initiated between*

			Hurley Stage III HS. Of these, 11 patients (29 cases of HS) underwent combined Treatment (surgical resection, followed by adjuvant biologic therapy (8 (73%) infliximab and 3 ustekinumab (27%)). The remaining 10 patients (26 cases of HS) underwent radical resection of each site alone. Patients were retrospectively divided into 2 cohorts for purposes of comparison: those treated with (1) radical resection alone or (2) in conjunction with adjuvant biologic therapy.		months (r, 6–31 months) and 20.5 months (r, 4–36 months) after radical resection and delayed primary closure, respectively (P = 0.81)	or newly developed signs of HS appearing in previously treated locations, while the presence of lesions in previously unaffected areas was definitive for disease progression. Complications included any cause of delayed healing or operative revision, as well as any adverse events attributed to the use of biologic therapy.	contrast, recurrence, necessitating reoperation, occurred in 10 of 26 sites (38.5%) among patients treated with surgery alone, (P < 0.01). On average, the disease-free interval between delayed primary closure and recurrence was 18.5 months (r, 4 to 30 months) for patients in the combined cohort versus 6 months (r, 1.5 to 15 months) for patients treated with resection alone (P < 0.001). Of the 4 recurrences in patients treated with adjuvant biologic therapy, 3 (75%) occurred within 15 months after discontinuation of infliximab (n = 2) or ustekinumab (n = 1) (mean, 10.5 months), with the remaining occurring after 4 months of active treatment with infliximab. When compared with the disease-free interval for the surgery only cohort, the mean duration to recurrence after cessation of biologic therapy was not statistically different (6 versus 10.5 months; P = 0.09).		*postoperative days 14 and 20 (mean, day 16) in all cases, after removal of sutures and documentation of complete re-epithelialization. Therapy was continued for a mean duration of 10.5 months (r, 6–15 months)*

Van Rappard 2012	C	Retrospective study	N=30 N = 26 (87%) had Hurley grade III HS; 4 (13%) patients had Hurley grade II In 24 patients (80%) infliximab treatment was followed by surgery to remove remaining fistulas or sinuses. Six patients (20%) were treated with infliximab only and improved remarkably.	unknown	Patients were followed for a mean of 50 months (maximum 127 months).	The first PGA was after infliximab only. The second PGA was performed after all additional surgical interventions were done. The third PGA was performed at the end of the follow-up period. Complications of surgery during or shortly after treatment with infliximab.	The PGA performed after the infliximab treatment period showed that 1 patient (3%) did not improve at all, 7 patients (23%) were moderately improved, 18 patients (60%) were improved, and 4 patients (13%) became free of lesions. This resulted in a mean PGA of 2.8 (Fig. 1b). The second PGA was performed after all additional surgical interventions were done. 3 patients (10%) showed moderate improvement, 16 patients (53%) improved, and 11 patients (37%) became free of lesions (Fig. 1c). This multistep treatment resulted in a mean PGA of 3.3, which was significantly better than the PGA observed after infliximab treatment alone ($P < 0.001$). The third PGA: With the combination of infliximab and additional surgery, 10 of the 30 patients were still free of lesions (33%). Complications of surgery during or shortly after treatment with infliximab were not observed.	unknown	Lost to follow-up unknown: *"Adverse events due to infliximab treatment were observed in 12 of 30 patients, resulting in discontinuation of treatment in 9 of them."* No comparison between the infliximab-only group and the infliximab with surgery group.

Author (year of publication) Methode of surgery.	Level of evid e-nce	Study design	Patients (N)	Inclusion criteria	Follow-up	Outcome measures	Results	Lost to follow-up	Comments
Altmann 2004	C	Retros pective study	20 patients with axillary HS. The inflammatory region was excised in a rhomboid shape and immediately covered with a transposition flap according to Limberg	unknown	Between 3 months and 5 years.	Not mentioned in paper	The postoperative course was uneventful. There were no important complications such as flap necrosis, septicemia, or emboli. Three patients showed a fistula in the axillary region 5 months after the operation. A second excision was performed in these patients. One patient had a postoperative lymphedema in the right arm which resolved by conservative treatment with lymphatic drainage and compression.	unknown	
Bieniek 2010	C	Observ ational study	118 operations were performed on 57 patients with HS.	unknown	2 years	Treatment tolerance was evaluated 3 months after surgery, and efficacy was evaluated after 24 months. The outcomes were assessed in accordance with the following criteria: complete recovery (absence of lesions), partial recovery (appearance of new	Complete recovery was observed in 34 (59.7%) patients, partial recovery in 18 (31.6%), and no improvement in five (8.8%). In the cases of partial recovery, the lesion-free period was assessed as 3 weeks to 24 months (mean 8.9 ±7.2 months). A relationship was found between the efficacy of the procedure and the number of areas of the body affected by disease ($p = .02$). Our own designed techniques, the pubic flaps	unknown	This study was undertaken to describe our own surgical techniques (“star-like” technique and “pubic flaps”) and an assessment of their efficacy and comparison with known surgical methods.

						but less severe lesions in an adjacent area or at the site of the surgical intervention), no improvement (manifestation of a comparable number and severity of HS lesions), and worsening.	(n=4) and star-like techniques (n = 6), were highly effective. The employment of pubic flaps resulted in a fast wound-healing process and minimized deformations of the vulva and groin. The star-like technique permitted reduction of tissue defects of axillary wounds and ensured accelerated healing by secondary intention in this region. Depending on wound magnitude, the spontaneous healing was estimated to be 2 to 4 weeks shorter than with such primary defects managed without the star-like method. Forty-four (77.2%) patients indicated good tolerance of the operation and in the postoperative period; only one (1.8%) reported unsatisfactory tolerance.		
Bocchini 2003	C	Observational study	56 consecutive patients with extensive HS in gluteal, perineal, and inguinal areas. Operative technique included complete excision of the whole diseased skin and subcutaneous fatty tissue down to the muscular	unknown Patients with HS located in the perineal, inguinal, and gluteal areas, treated in the Colorectal Unit of the Gastroenterology Department at the University of São Paulo Medical School between January 1980 and	Mean time of follow-up was 12 months (range, 4 months to 6 years).	Surgical treatment, time until complete healing, early and late operative complications, and recurrence rates were evaluated.	In 32 (57.1 percent) patients, the resultant wound was left to heal by second intention. In 24 (42.9%) patients, skin grafting was performed for wound closure within two or three weeks after excision when signs of sepsis were no longer observed. Diverting colostomy was used in 23 (41%) patients because of extensive and complex lesions involving perianal margins. Time for complete wound healing for patients treated	unknown	Extensive HS was defined as bilateral gluteal or perineal disease, because unilateral gluteal and perineal or unilateral gluteal and inguinal disease was present.

			fascia under careful hemostasia. Secondary intention healing was used for larger lesions and delayed (after 2 or 3 weeks) skin grafting was preferentially used when extensive disease was present. Grafts were usually obtained from dorsal area of the thighs.	May 2000 were reviewed.			by excision and second intention healing varied proportionally to the extent and degree of infection of the unroofed area, with a mean of 10 weeks (range, 7–17 weeks). In the patients treated by excision and skin grafting, the time until complete healing was shorter, with a mean of six (range, 3–9) weeks. Partial loss of the skin graft occurred in nine (37.5%) patients treated with this technique. Two of these patients underwent new grafting with good results; the others were treated by surgical dressing and healing by second intention. Skin grafting provided a better cosmetic result, even when partial graft loss occurred, compared with healing by secondary intention. Local recurrence was observed in one (1.8%) patient after 17 months.		
Buyukasik 2011	C	Observational study	36 sites in 15 patients with HS treated surgically	unknown The study analyzed patients with HS treated surgically in the departments of general surgery, Abant izzet Baysal University Medical Faculty	The mean duration of follow-up after surgery was 44 months (10–84).	active surgical intervention, surgical treatment modalities, complications, and recurrence rate were evaluated.	Radical excision was performed on lesions, and 20 of the lesions were reconstructed with primary closure, nine with fasciocutaneous flaps, and five with split-thickness skin grafts. Two lesions were treated using secondary healing. In 3 cases reconstructed with a flap, a split-thickness skin graft was	unknown	

				and Yildirim Beyazit Training and Research Hospital over 10 years. Patients seen only as outpatients were not included in the study.			also performed. A diverting colostomy was performed on one patient. There were no complications related to the stoma construction or reversal, which was performed after complete wound healing. The overall complication rate was 25% (9/36). Wound infection occurred in 8.3% (3/36) of patients. Partial loss of the skin graft occurred in two patients with perineal lesions treated with secondary healing. Contractures developed in these patients. Wound dehiscence occurred in one patient treated using secondary suturing. The rate of recurrence in the sites at which surgery was performed was 5.5% (2/36). At the third monthly follow-up of two cases with buttocks disease, recurrence occurred at the intergluteal site.		
Civelek 2010	C	Observational case series	14 were treated for advanced HS	unknown Severe HS cases where surgical reconstructive methods are presented.	They were followed up for three years for postoperative recurrences.	Not mentioned in paper	All of the cases had split thickness skin grafting following excision in the groin regions. Postoperatively, 2 patients had lysis of grafts for which they underwent skin grafting in the groin for a second time. There were recurrences in 4 cases in the groin area where re-excision and re-grafting were performed. There was no flap necrosis	unknown	

							or dehiscence in the axillary areas. During the follow-up period, no limitation was observed in arm movements in all cases except for one patient with flap reconstruction. This case with contracture underwent contracture release. In the long-term, all patients were satisfied with the results. No recurrence of disease occurred in any of the patients during three years of follow-up.		
Menderes 2010	C	Observational report	54 sites in 27 patients	unknown Patients with moderate to extensive chronoc inflammatory skin lesions treated surgically	Patients have been followed for a mean of 19.7 months (range 6-48 mo).	Not mentioned in paper	Excision and primary closure was used only for mild and moderate (Hurley stage I) axillary and inguinal disease, whereas wide local excision and split-thickness skin grafting or fasciocutaneous flap was the mainstay of treatment in patients with diffuse disease (Hurley stage II and III). For the reconstruction of the glutal region Split thickness skin graft (STSG) was used in 9 patients, fasciocutaneous V-Y advancement flap in one patient and transposition flap in 1 patient. Primary closure was used in 13 axillary regions and 10 fasciocutaneous flaps from the parascapular region were used. 4 flaps were thoracodorsal perforator based. All flaps survived totally except for minor distal	Some patients who underwent HS surgery were not willing come to clinic for checking up previous operated areas if they have no problem. Developing HS on the new areas gave chance to us for long term follow up on these patients.	

							marginal flap necrosis in 2 parascapular flaps which were treated by simple suturation. Only 2 recurrences were observed in this patient series. Both were inguinal lesions treated by primary closure. The recurrences were treated by wide excision and defect closure by fasciocutaneous flaps.		
Rompel 2000	C	Observational study	106 patients	unknown	Mean postoperative follow-up time was 36 months.	Not mentioned in paper	The overall rate of intraoperative and postoperative complications was 17.8%. Most of them were minor complications such as suture dehiscence, postoperative bleeding and hematoma. The rate of recurrence within the operated fields was 2.5%. Thera was no relation between the surgical method of reconstruction and the rate of recurrence. Rucurrence was related to a greater number of surgical procedures, indicating the severity of the disorder as a risk factor for recurrence.	unknown	

Uitgangsvragen:

1. Welke laser- en lichttherapieën zijn effectief bij HS patiënten?
2. Is ontharen effectief ter preventie van HS flares?

Author (year of publication)	Level of evidence	Study design	Patients (N)	Inclusion criteria	Follow-up	Outcome measures	Results	Lost to follow-up	Comments
Nd:YAG (and CO2)									
Abdel Azim, 2018	B	RCT, intra-patient	N = 20 were randomized 4 sessions with 2 weeks interval of I: one side = combined Treatment of fractional CO2 laser and long pulsed Nd : YAG (1064 nm) laser C: other side = long pulsed Nd : YAG laser (1064 nm) only	>18 years with HS Hurley's stage I + II bilateral and almost symmetric lesions with one or more anatomic sites affected Exclusion: - Hurley's stage III - Pregnant and lactating women – Patients with systemic diseases – usage of topical or systemic medications, or laser therapy for HS within 2 weeks prior to enrollment	3 months	Primary: After 2 weeks post-treatment: - objective photographs - clinically: (subjective) PGA. Degree of improvement was calculated as the percentage of PGA 2 weeks after treatment to the PGA at the baseline. - 10point VAS for patient's Satisfaction - side effects. - histopathologically: 3.5 mm lesional punch biopsy and histopathologic examination using disposable punch Secondary After 3 months: - recurrence post treatment (as activation of the previously	- Higher improvement and patient's satisfaction was observed in combined treatment side compared with control side (P = 0.011, 0.048 respectively): mean degree of improvement in combined treatment side was 90% 20.52 SD with mean VAS = 8.05 1.84 SD, while mean degree of improvement in Nd : YAG side was 70.68% 23.55 SD with mean VAS = 7 1.62 SD. PGA was clear (score = 0) in 80% (n = 16) of the treated sides. - Absence of recurrence was achieved by 55% of sides receiving combined treatment and 35% of control sides. - histopathology: sparse perifollicular lymphohistiocytic	N = 5 (25%)	- coin tossing for allocation concealment - small sample size (didn't math power calculation) - single blinded

						present lesion and/or appearance of a new lesion)	inflammatory infiltrate for combined treatment sides. Less reduction in the perifollicular infiltrate and dermal edema for Nd : YAG sides compared with combined treatment sides. - No side effects were reported except for erythema that resolved spontaneously within 48 hours post treatment.		
Mahmoud, 2010	B	RCT, within patient Follow-up study description of Tierney, 2009	N=22 <u>Intervention</u>: Half side body Nd:YAG laser plus topical regimen (same as control) monthly for 4 months <u>Control</u>: contra lateral side topical therapy in the form of benzoyl peroxide wash 10% and clindamycin 1% lotion. <u>Assessment</u>: 4 monthly laser treatment.	Inclusion: - patients with HS Hurley stage II with bilateral and symmetric disease with one or more anatomic sites of involvement Washout period for patients, of both systemic and topical therapy for 2 weeks before study initiation. Exclusion: concomitant use of systemic treatments for HS, systemic antibiotics and retinoids (stop 2 weeks beforestudy)	6 months by modified HS-HLA ad 5 months for histopathologic results.	- disease activity HS Lesion Area and Severity Index on Sartorius score - Histologic examination (4 patients had biopsies) - questionnaire for satisfaction	- Progressive improvement in disease activity maintained during follow-up: averaged over all anatomic sites, the percent improvement was 72.7% on the laser treated side, and 22.9% on the control side (difference between treated side and control: P <.001). Results for axilla and inguinal folds were comparable. Inframammary results showed that decrease at the treated sites was not significant over the decrease at the control sites (P = .120). - Histologic examination: no significant change immediately after treatment with no evidence of thermal injury. 1 week after	5 (withrawal before treatment, pregnancy, cellulitis wherefore AB was needed)	- small sample size - randomized by coin toss

							treatment an initial acute neutrophilic infiltrate. Granulomatous inflammation at follow up. An inflammatory infiltrate surrounded the hair shaft remnants, denoting destruction of hair follicles. - satisfaction: pain: 77% less, 15% moderately less, 8% unchanged. 92% stated that it was more effective relative to other medical treatment such as topical and oral antibiotics, retinoids, and hormonal therapy, whereas 8% stated that it was equal.		
Tierney, 2009	B	RCT, within patient See also Mahmoud 2010 for follow-up study and histopathological results of 4 patients of this	N=22 <u>Intervention</u>: One half body site 1,064-nm Nd:YAG (4 times every month) and topical antibiotics (see control) <u>Control</u>: contra-lateral half body topical antibiotics (benzoyl peroxide wash 10%, clindamycin 1% gel or 1% lotion)	Patients with stage II to III HS Disease with bilateral and symmetric disease with one or more anatomic sites of involvement. Exclusion: systemic and topical therapy during study. Otherwise wash out for 2 weeks before study initiation	4 months (1 month after last treatment)	- HS-LASI scale and modified HS-LASI (0-3) for patient symptoms (erythema, edema, pain, and purulent discharge); before each treatment and 1 month afterwards Percentage improvement was calculated by comparing the HS-LASI and modified HSLASI score	N=15 inguinal disease, N=12 axillary disease, N=7 inframammary disease; Change in HS severity after 3 months was – 65.3% over all anatomic sites, - 73.4% inguinal, - 62.0% axillary, and - 53.1% inframammary. For all anatomic sites combined and each individual anatomic site, the change in HS severity from baseline to month 3 was statistically significant at the treated sites (p<.02 for modified HS-LASI and HS-LASI) but not at the control	5 (withrawal before treatment, pregnancy, cellulitis wherefore AB was needed)	- small sample size - randomized by coin toss - time points of assessment not exactly clear: results describe as 3 months, but studt set up for 4 months. Probably results are from one months after last treatment.

		study set up					sites (p<.05 for modified HS-LASI and HS-LASI). Improvement in HS-LASI score was significantly greater on the laser-treated side than on the control side for the axillary and inframammary sites. Continued progression of improvement in HS-LASI score was observed with each subsequent Nd:YAG laser treatment, with the greatest overall change in HS-LASI score between baseline and month 1 for all anatomic sites treated (p<.05, change in HS-LASI score baseline vs month 1 relative to all other monthly time intervals.)		
Xu, 2011	B	RCT, within patient From same study group as Mahmoud 2010 and Tierney 2009	N = 20 <u>Intervention</u>: Long-Pulsed 1064-nm Nd:YAG Laser <u>Control</u>: depending on number of anatomic sites: 1 anatomic site = no treatment at contralateral side, 2 anatomic sites = other anatomic site serves as untreated control.	Patients with Hurley stage II disease <u>Exclusion</u>: - concomitant use of systemic treatments for HS, which must be discontinued for 2 weeks prior to start of the study - exacerbation of the patient's original condition expressed clinically by	2 months	Modified HS-LASI described by Sartorius et al (see Tierney 2009 and Mahmoud 2010) with patients symptoms (erythema and edema by VAS). Percentage of improvement calculated by comparing modified HS-LASI score at baseline with the score at each laser treatment (on days 30 and 60). Histopathologic changes,	- overall anatomic sites: –31.6% (P<0.001) change in HS-LASI, mean HS-LASI scores 2 months vs baseline axilla: 17.2 (6-28) vs 23.7 (9-34); inguinal 22.6 (0-49) vs 38.6 (6-100). - Histopathological changes: increased inflammation at 1 week after treatment and decreased inflammation with resulting fibrosis and scarring at 1 month and 2 months after treatment.	1	- small sample size - randomization by anatomic site of disease: bilateral axilla, inframammary region or groin. - change in time points for assessment of histopathologic examination (7 patients after first 24 hours and 12 patients after 1 week in stead of 24

			Four-millimeter skin punch biopsy specimens: active lesions on the treated site before laser treatment, after 24 hours (for the first 7 specimens) and at day 7, day 30, and day 60 (for all patients). On day 60, an active lesion from an untreated site was biopsied as control.	a shift from Hurley stage II to stage III. Topical treatments were allowed.		clinicopathologic correlation	- Response of 15/18 transitioned from a marked superficial and deep inflammatory response seen on pathologic findings at baseline to a minimal inflammatory response (mainly deep if present) and/or scarring and fibrosis seen at 2 months after laser treatment. This change at the microscopic level corresponded with a decrease in the HS-LASI scores of these patients (ns).		hours). No data of controls.
Diode laser									
Fabbrocini, 2018	C	Retrospective study, open clinical study	N = 20 Intervention: **Diode laser** with a wavelength of 1064nm in pulsed operation; four laser sessions, one every two weeks.	Not clearly stated: HS patients aged between 18 and 44 years were conducted - wash-out period from any topical and systemic medications. Exclusion: Patients with significant comorbidities and those who were pregnant.		At baseline and after 8 weeks: - Hurley stage - Sartorius score - PGA Responses were classified as complete (improved by 65% or more), good (between 40% and 65%), partial (between 15% and 40%) and no response (less than 15%). - HiSCR - DLQI	- 50% of patients had a Hurley stage I, while the remaining subjects had a Hurley stage II; no patient with Hurley stage III was recruited. - Each patient significant reduction (31%) of Sartorius score from 28.55 ± 13.04 to 19.75 ± 12.29 after 4 laser sessions ($p < 0.05$) - HiSCR was achieved in 13 patients (65% of patients). 60% of patients with Hurley II and 80% patients with Hurley I - DLQI values reduction ($p = 0.0307$) - Adverse effects included postoperative pain, erythema, and mild	unknown	- Not classic comparative study set-up; no control group - small sample size

							swelling. One patient complained of fever and an influenza-like illness, which resolved itself. Serious adverse side effects, suppuration or infections did not occur.		
IPL									
Fadel, 2015	B	RCT, intra-patient	N = 11 were included (6 excluded) Both using IPL with a 630 nm filter <u>Intervention</u>: one side niosomal MB (NMB) gel <u>Control</u>: unloaded (free) MB (FMB) gel.	All stages of HS (by Hurley grade) Exclusion: - isotretinoin use in the previous 6 months - pregnancy or lactation - history of photosensitivity	6 months	Modified HS-LASI	Lesions at Hurley stage 3 showed variable degree of improvement. Mild improvement was obtained in one patient with extensive fibrosis while moderate improvement was obtained in another patient. There was a significant reduction in HS-LASI scores after both treatments. NMB gel produced a higher percentage reduction in lesion size compared with FMB gel (77.3 18.86% vs. 44.1 28.19%, respectively) which was statistically significant ($P < 0.01$). There was no significant correlation between anatomical site, disease stage and number of treatments. There were no reports of pain, erythema or hyperpigmentation. Two patients developed new lesions at the FMB-treated sites on the buttocks 3 months after treatment cessation,	1	- small sample size - single blinded – randomization by tossing a coin

							and one FMB-treated patient experienced relapse of HS in the axilla 6 months after treatment cessation.		
Highton, 2011	B	RCT, within patient	N = 18 Intervention: IPL of one axilla, groin or inframammary area 2x/wk for 4 wks (Harmony Laser) Control: contralateral side untreated Assessment: before and after treatment and then at 3, 6, and 12 months.	Inclusion Criteria: adults with Hurley stage II or III HS with bilateral axillary, groin, or inframammary disease. Exclusion: using topical or systemic therapy for 2 weeks before the first treatment.	1 year	- response to treatment by Hidradenitis Suppurativa Examination Scoring System from Sartorius et al: Type of lesion, longest distance between two lesions, lesions separated by normal skin, erythema, discharge, max 24 points) - alidated examination and clinical photographs - patient satisfaction on a Likert scale.	N=12 axillary disease, n=4 groin disease, n=2 inframammary disease. Change in HS examination score (IPL vs control) significant improvement in the mean examination score that was maintained at 12 months (p 0.001, logistical regression analysis): after treatment -55% vs 12%, 3 months –56% vs -10%, 6 months –44% vs -10%, 12 months –33% vs 3%. The improvement was confirmed by independent assessment of clinical photographs (interrater reliability, 0.79; p 0.001). - The experts detected an improvement in the signs of HS on the treated side but no change on the control side, with high interrater reliability (kappa= 0.79, p< 0.001). - Patients reported high levels of satisfaction with the treatment.	1 (painful treatment)	- small sample size - single blinded
Photodynamic therapie (PDT)									
Schweiger, 2011 (alleen	C	open-label, non-	N =12 Intervention:	Active HS	More than 12 weeks	Efficacy and safety: - Number of lesions - Global severity score	- Mean lesion counts were 11.25 at baseline, 6.5 at 4 weeks (50.8%	3	- Abstract only - non blinded

gegevens uit abstract)		blinded study	photodynamic therapy with aminolevulinic acid: two blue light sources and intense pulsed light (IPL): once weekly for four weeks			- DLQI	reduction), and 7.5 at 8 weeks (29.9% reduction). - Three subjects (25%) had complete clearance and no active lesions 4 weeks after the final treatment - Mean Global Severity Scores were 2.2 at baseline, 1.5 at 4 weeks, and 1.8 at 8 weeks. - Mean DLQI scores were 17.3 at baseline, 13.1 at 4 weeks (27.2% improvement), 14.00 at 8 weeks (19.3% improvement) and 14.0 (19.3% improvement) at the final week (16-62 weeks).		- study set up unknown
Suárez Valladares, 2017	C	Retros pective study, case series	N=38 <u>Intervention</u>: intralesional photodynamic therapy with 5-aminolevulinic acid and 630 nm laser beam	HS patients recruited and treated at the Dermatology Department of Complejo Asistencial Universitario de León (Spain) between March 2011 to Nov 2015. 52.6% overweight or obese, 89.5% active smokers at the time of the treatment. 5.3% treatment-naïve and 23.7% had also been treated with surgical	unknow n	- Disease severity by Hurley score - DLQI - HSS - VAS 1-10 in pain - time to recovery: days taken off before returning to work or normal routine.	- Hurley score I: 4 (10.5%)/II: 21 (55.3%)/III: 13 (34.2%) - 76.3% (29/38) achieved a complete response, while persistence was noted on 8 cases and 1 suffered a recurrence. Difference between basal (median 28.5) and final (0) HSS showed a significant reduction of 24.5 points ($p < 0.001$, 95% OR 19.5-31). - Basal (median 10) and final (1) DLQI scores reached a reduction of 10 points ($p < 0.001$, 95%OR 8-12). - VAS points 3 (2-5.25)	unknown Follow-up time mean 26.21 months (21.07-68.57)	

				methods.			- Time to recovery 1 (1-2) - Complete response was achieved in 68.2% of armpits, 88.5% of groins, 88.9% of buttocks and 100% of other locations. - 47.3% (18/38) patients needed only one session to achieve a complete response, while maintaining a good tolerability. - Treatment failures (n=9) lower percentage of obesity (33.3% vs 58.6%) and smoking habit (66.7% vs 96.6%) but a more severe initial disease (Hurley stage III 44.4% vs 31%), basal HSS score (36 vs 22) and basal DLQI values (16 vs 10).		
Valladares-Narganes, 2015	C	Interventional study	N=27 <u>Intervention:</u> Intralesional PDT 5-aminolaevulinic acid in saline at a concentration of 1% was administered at a dose of 0.2 mL/cm3 of fistula, with a canula in sinus tracts or directly intralesional. Lesion were intralesionally irradiated with a	HS patients were recruited from March 2013 to November 2013. No washout period. Exclusion: - Significant comorbidities - Pregnancy	1, 3, 6 months	- modified Sartorius scale score: complete (improved by 75% or more), good (between 50% and 75%), partial (between 25% and 50%) and no response (less than 25%). - VAS pain score (0-10) - Adverse events	- 10 (37%) complete responses, 11 (41%) good responses and 5 (19%) partial responses. - Pain: 1 patient experienced severe pain (score 9). Moderate pain in 4 patients (visual analogue scale value 6–9). - Adverse effects included postoperative pain, erythema and mild swelling.	1 nonresponding patient	No randomization

			630-nm laser diode to 1 Watt cm3 for 3 min (180 joules). Those patients who showed a suboptimal response, or who had new lesions near the treatment site, received a further treatment session.						
Vossen (a), 2018	C	Retrospective, case serie	N=25 <u>Intervention</u>: long-pulsed 1064-nm neodymium-doped yttrium aluminum garnet (Nd:YAG)	HS patients with the follicular sub-phenotype and mild disease (HS-PGA 2, Hurley stage IA) July 2011 - December 2016 in the dermatology department of the Erasmus University Medical Center (Rotterdam, The Netherlands)	Reported follow-up (in months) 14.9 ± 14.1	A questionnaire was sent to assess patient reported outcomes. Primary: - Number of HS flares per month Secondary: - disease severity: NRS scale 0-10 (no suffering -extreme/unbearable suffering) - overall treatment satisfaction: NRS scale 0-10 (very dissatisfied to very satisfied) - quartile grading scale for decrease of hair growth in the treated area	- Nd:YAG depilation resulted in a decrease in the number of monthly flares (p = 0.019) - The mean HS disease severity after depilation was significantly lower than before therapy, NRS 6.4 ± 2.8 versus NRS 3.6 ± 3.5 (p = 0.010) respectively - Overall treatment satisfaction NRS score: 6.7 ± 2.4 - The majority of patients reported a 51 % – 75 % decrease of hair growth after treatment	10 (no response or declined) 2 excluded because of suboptimal treatment	- no control group
Vossen (b), 2018	C	Intra-patient RCT	N=9 Intervention: Single miraDry treatment (5.8 GHz, energy level 5, manufacturer's recommended settings) in one	HS patients with a total abscess and nodule (AN) count between 3-5 per axilla with no more than one abscess or draining sinus.	3 months	Primary: left-right comparison of the axillary areas using the Hidradenitis Suppurativa Clinical Response (HiSCR). Secondary:	- 2 patients reached HiSCR in miraDry treated axillae - 2 patients reached HiSCR in contralateral axilla (p=1) - 5 patients experienced worsening of their	1 excluded due to extreme pain during miraDry procedure	Study was discontinued due to negative clinical outcomes during recruitment period.

			axilla under tumescent anesthesia.			- numerical rating scale (NRS) on pain per axilla, - treatment satisfaction, - hair follicle 17 ount.	disease after miraDry treatment. - active lesions during median 43 days (IQR 4-90) in miraDry treated axilla versus 5.5 days (2-26) in untreated axilla (p=0.14) - Median NRS (IQR) after 3 months was 7.0 (2.0-8.0) in the treated axilla versus 0 (0-5.0) in the untreated axilla (p=0.07). - Lower number of hair follicles in the miraDry-treated axilla (median 4.0 cm-2, IQR 3.0 – 5.0; -50.9% from baseline), compared with the untreated axilla (median 8.5 cm-2, IQR 6.0 – 10.0; -2.0% from baseline), P=0.07.	1 drop out due to worsening HS symptoms in treated axilla	Only 8 of the 20 recruited patients were treated.

Abbreviations: DLQI = Dermatology Quality of Life; HiSCR = Index Hidradenitis Suppurativa Clinical Response; HS-LASI = HS Lesion, Area, and Severity Index; HSS = Hidradenitis Severity Score; ns = not significant; NRS = Numerical Rating Scale, VAS = visual analogue scale

Bijlage D: Aanvullende teksten

Instructies en adviezen voor gebruik van etanercept

Instructies voor gebruik

Algemene instructies voor het gebruik van biologicals staan vermeld in het inleidende hoofdstuk over biologicals. Daarin wordt onder andere een overzicht van instructies voor, tijdens en na de behandeling met biologicals weergeven. Daarnaast worden ook aanbevolen laboratoriumcontroles weergeven.

Contra-indicaties

Absolute contra-indicaties

- Overgevoeligheid voor de werkzame stof of voor één van de hulpstoffen
- Actieve infecties van klinische betekenis (zoals actieve tuberculose)
- Congestief hartfalen (NYHA klasse III of IV)
- Levende vaccins.

Relatieve contra-indicaties

- Gelijktijdige behandeling met immunosuppressiva
- Latente tuberculose-infectie
- PUVA >200 behandelingen (vooral indien gevolgd door ciclosporinegebruik)
- Zwangerschap / lactatie
- Hiv-infectie of aids
- Latente hepatitis C- en B-infectie (gebruik antivirale geneesmiddelen). (Overleg met hepatoloog)
- Congestief hartfalen (NYHA klasse I of II)
- Demyeliniserende ziekten
- Maligniteiten en lymfoproliferatieve aandoeningen.

Bekende bijwerkingen

De meest voorkomende bijwerking van etanercept zijn lokale reacties op de injectieplaats en milde infecties. In grote studies werd na vier jaar follow-up geen toename in de incidentie van maligniteit of infecties aangetoond onder psoriasispatiënten behandeld met etanercept vergeleken met placebo en / of de algemene bevolking. [Tyring 2007] Zie de SmPC-tekst voor het complete overzicht van mogelijke bijwerkingen.

Overdosering

Er werd geen dosisbeperkende toxiciteit waargenomen gedurende klinisch onderzoek van patiënten met reumatoïde artritis. De hoogst geëvalueerde dosering was een intraveneuze oplaaddosis van 32 mg / m^2, gevolgd door subcutane doses van 16 mg / m^2, tweemaal per week toegediend. Er is geen antidotum bekend voor etanercept.

Interacties tussen geneesmiddelen

De combinatie van etanercept en anakinra is in verband gebracht met een verhoogd risico op ernstige infecties en neutropenie en heeft geen klinisch voordeel aangetoond. De gelijktijdige toediening van etanercept en abatacept heeft eveneens geen klinisch voordeel laten zien. Daarentegen was er een verhoogde incidentie van ernstige bijwerkingen.

Langetermijnveiligheid

De langetermijnveiligheid van etanercept is niet onderzocht in een populatie met HS patiënten. Uit de studies van Nast et al. en Gottlieb et al. bleek dat etanercept ten opzichte

van placebo geen verhoogd risico gaf op ernstige bijwerkingen (RR 0,64 (95% CI: 0,11, 3,70). [Nast 2015, Gottlieb 2003]

Bijzondere aspecten van de behandeling

Zwangerschap

Ontwikkelingstoxiciteitstudies die zijn uitgevoerd bij ratten en konijnen toonden geen tekenen van schade, aangebracht aan de foetus of aan de neonatale rat, als gevolg van etanercept. Een hoger percentage ernstige geboorteafwijkingen werd waargenomen in een observationele studie die zwangerschappen vergeleek waarin de vrouw in het eerste trimester was blootgesteld aan etanercept, met zwangerschappen waarin de vrouw niet was blootgesteld aan etanercept of andere biologicals (aangepaste odds-ratio 2,4, 95%-CI: 1,0-5,5). Er werd geen verandering waargenomen in de mate van voorkomen van miskramen, doodgeboorten of kleine misvormingen. Het gebruik van etanercept wordt niet aanbevolen tijdens de zwangerschap.

Pasgeborenen van moeders die adalimumab gebruiken, mogen geen levende vaccins toegediend krijgen tot minimaal zestien weken na de laatste toediening aan de moeder. [SmPC tekst]

Referenties

- Gottlieb AB, Matheson RT, Lowe N, Krueger GG, Kang S, Goffe BS, et al. A randomized trial of etanercept as monotherapy for psoriasis. Arch Dermatol 2003;139:1627-32; discussion 32.
- Nast A, Jacobs A, Rosumeck S, Werner RN. Efficacy and Safety of Systemic Long-Term Treatments for Moderate-to-Severe Psoriasis: A Systematic Review and Meta-Analysis. J Invest Dermatol 2015;135:2641-8.
- SmPC tekst http: / / www.geneesmiddeleninformatiebank.nl / – zoek geneesmiddel – etanercept
  (laatst geraadpleegd op 12 november 2016).
- Tyring S, Gordon KB, Poulin Y, Langley RG, Gottlieb AB, Dunn M, et al. Long-term safety and efficacy of 50 mg of etanercept twice weekly in patients with psoriasis. Arch Dermatol 2007;143:719-26.

Instructies voor gebruik

Algemene instructies voor het gebruik van biologicals staan vermeld in het inleidende hoofdstuk over biologicals. Onder andere wordt een overzicht van contra-indicaties en aanbevolen laboratoriumcontroles weergegeven.

Contra-indicaties

Absolute contra-indicaties

- Overgevoeligheid voor eiwitten geproduceerd m.b.v. E. coli
- Actieve infecties van klinische betekenis (zoals actieve tuberculose)
- Zwangerschap / lactatie
- Actieve hepatitis B- en C-infectie
- Ernstige nierfunctiestoornissen (creatinineklaring < 30 ml / min).
- Start van de behandeling bij neutropenie (ANC < 1,5 × 109 / l).

Relatieve contra-indicaties

- Latente tuberculose-infectie
- Ouderen (meer kans op infecties)
- Matige nierfunctiestoornissen (creatinineklaring 30-50 ml / min)
- Recidiverende infecties
- Slecht gereguleerde diabetes mellitus en astma.

Bekende bijwerkingen

De meest voorkomende bijwerking van anakinra is een reactie op de injectieplaats (erytheem, ecchymose, ontsteking en pijn; meestal licht tot matig). Daarnaast wordt bij 1-10% van de patiënten neutropenie gezien. Ook bij 1-10% komen ernstige infecties voor (meestal van bacteriële oorsprong zoals cellulitis, pneumonie en botinfecties) waarvoor ziekenhuisopname is vereist. Voor een compleet overzicht van alle bijwerkingen die mogelijk kunnen optreden wordt verwezen naar de SmPC tekst.

Overdosering

In een studie bij patiënten met reumatoïde artritis (RA) werd geen dosisbeperkende toxiciteit waargenomen. In studies bij 1015 sepsispatiënten werd ongeveer 35 keer de bij RA aanbevolen dosering anakinra toegediend. Het bijwerkingenprofiel in deze studies vertoonde geen verschil met het bijwerkingenprofiel van de normale dosering anakinra in RA-studies. [SmPC tekst]

Langetermijnveiligheid

Langetermijngegevens zijn onbekend. [SmPC tekst]

Bijzondere aspecten van behandeling

Neutropenie

Aanbevolen wordt het aantal neutrofielen te bepalen voor het starten van de behandeling met anakinra, daarna maandelijks gedurende de eerste zes maanden en vervolgens driemaandelijks.

Zwangerschap

Er zijn weinig gegevens bekend over het gebruik van anakinra tijdens de zwangerschap. In studies op zwangere ratten waarbij hoge doseringen anakinra werden toegediend werd geen nadelig effect op de foetus waargenomen. Anakinra wordt niet aanbevolen voor gebruik tijdens de zwangerschap en bij vrouwen die zwanger kunnen worden en geen anticonceptie toepassen. Het is niet bekend of anakinra / metabolieten in de moedermelk

worden uitgescheiden. Risico voor pasgeborenen / zuigelingen kan niet worden uitgesloten. Borstvoeding moet worden gestaakt tijdens behandeling met anakinra. [SmPC tekst]

Referentie

- SmPC tekst http://www.geneesmiddeleninformatiebank.nl/ – zoek geneesmiddel – anakinra (laatst geraadpleegd op 15 november 2016).

Bijlage E: Kennislacunes

Vanuit de richtlijn herziening 2019:
Bij de modulaire herziening in 2019 werd geconstateerd dat voor onderstaande uitgangsvragen slechts bewijs van onvoldoende kwaliteit beschikbaar is.

- Wat is de effectiviteit van psychologische ondersteuning bij patiënten met hidradenitis suppurativa op de kwaliteit van leven?
- Welke leefmaatregelen zijn zinvol en worden aanbevolen bij hidradenitis suppurativa (HS)?
- Welke factoren kunnen de kwaliteit van leven bij HS patiënten verbeteren? Is psychologische ondersteuning effectief in het verbeteren van de kwaliteit van leven bij HS patiënten?

Er is behoefte aan vergelijkende studies waarin verschillende soorten chirurgische (sluitings-) technieken en postoperatief beleid met betrekking tot postoperatieve wondverzorging, wondverbanden en plaatselijke medicatie voor lokale wonden met elkaar worden vergeleken.
Dit geldt ook voor de uitgangsvragen:

- Dient systemische therapie met biologicals te worden gestaakt vóór chirurgische interventie bij HS patiënten?
- Welke laser- en lichtbehandelingen zijn effectief bij HS patiënten?
- Is ontharen effectief ter preventie van HS opvlammingen?

Vanuit de kennisagenda (2018):
Op basis conclusies met laag/zeer laag niveau van bewijs (EBRO niveau 3-4 en GRADE laag tot zeer laag) worden onderstaande uitgangsvragen als kennislacunes beschouwd.

- Wat is bij patiënten met hidradenitis suppurativa het effect van routinematig wassen met antiseptica op het ziekteverloop versus normale huisverzorging en reiniging?
- Wat is de effectiviteit van verschillende wondverbanden bij hidradenitis suppurativa?
- Wat is het effect van resorcinol 15% als onderhoudsbehandeling op de duur van de laesies en de pijn bij milde tot matig ernstige hidradenitis suppurativa?
- Wat is de effectiviteit van de combinatietherapie van rifampicine en clindamycine bij patiënten met hidradenitis suppurativa?
- Wat is de effectiviteit van tetracyclinen bij hidradenitis suppurativa?
- Wat is de effectiviteit van dapson bij de behandeling van (therapieresistente) hidradenitis suppurativa?
- Wat is het effect van systemische corticosteroïden op de klachten tijdens een opvlamming van hidradenitis suppurativa?
- Wat is het effect van behandeling met ciclosporine bij hidradenitis suppurativa?
- Wat is het effect van behandeling met isotretinoïne bij hidradenitis suppurativa?
- Wat is het effect van behandeling met acitretine bij hidradenitis suppurativa?
- Wat is het effect van finasteride bij patiënten met hidradenitis suppurativa?
- Wat is het effect van (voldoende hoog gedoseerde) cyproteronacetaat in de behandeling van lang bestaande hidradenitis suppurativa bij vrouwen?