

**To Supporting Information: Local management of anogenital warts
in non-immunocompromised adults: a network meta-analysis of
randomized controlled trials**

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Treatments are reported in order of relative ranking for efficacy. Comparisons between treatments should be read from left to right. The relative risk of each comparison is in the cell in common between the column-defining treatment and the row-defining treatment. A relative risk (RR) above 1 favors the column-defining treatment for the network estimates and the row-defining treatment for the direct estimates. IFN = interferon. Data presented as RR (95% CI). Cryo: cryotherapy; ablative: ablative treatment (surgery or electrosurgery or CO2 laser or cryotherapy); imi: imiquimod 5%; 5-FU: 5 fluorouracil; 5-FU intra: intralesional 5 fluorouracil; TCA: trichloroacetic acid; podo: podophyllin 20-25%; citric ac: citric acid 9%; polyph: polyphenon 15%; podotox cr: podophyllotoxin 0.5% cream; podotox cr/gel: podophyllotoxin 0.5% gel + cream; podotox gel: podophyllotoxin 0.5% gel; PDT: photodynamic therapy; mycobac intra: intralesional mycobacterium; KOH: potassium

hydroxide; electro: electrosurgery; INF-1a intra: intralesional interferon-1 α ; INF-2b intra: intralesional interferon-2 β .

Appendix S6. Forest plot of the estimates of relative risk between each treatment and the reference placebo for complete lesion response. Sensitivity analyses: (A) Worst-case scenario, (B) Best-case scenario.

Data presented as RR (95% CI). Cryo: cryotherapy; ablative: ablative treatment (surgery or electrosurgery or CO2 laser or cryotherapy); imi: imiquimod 5%; 5-FU: 5 fluorouracil; 5-FU intra: intralesional 5 fluorouracil; TCA: trichloroacetic acid; podo: podophyllin 20-25%; citric ac: citric acid 9%; polyph: polyphenon 15%; podotox cr: podophyllotoxin 0.5% cream; podotox cr/gel: podophyllotoxin 0.5% gel + cream; podotox gel: podophyllotoxin 0.5% gel; PDT: photodynamic therapy; mycobac intra: intralesional mycobacterium; KOH: potassium hydroxide; electro: electrosurgery; INF-1a intra: intralesional interferon-1 α ; INF-2b intra: intralesional interferon-2 β .

Appendix S7. Network meta-analysis estimates (lower triangle) and direct estimates (upper triangle) of complete lesion response for all therapies. Sensitivity analyses: Intention to treat.

Treatments are reported in order of relative ranking for efficacy. Comparisons between treatments should be read from left to right. The relative risk of each comparison is in the cell in common between the column-defining treatment and the row-defining treatment. A relative risk (RR) above 1 favors the column-defining

treatment for the network estimates and the row-defining treatment for the direct estimates. IFN = interferon. Data presented as RR (95% CI). Cryo: cryotherapy; ablative: ablative treatment (surgery or electrosurgery or CO2 laser or cryotherapy); imi: imiquimod 5%; 5-FU: 5 fluorouracil; 5-FU intra: intralesional 5 fluorouracil; TCA: trichloroacetic acid; podo: podophyllin 20-25%; citric ac: citric acid 9%; polyph: polyphenon 15%; podotox cr: podophyllotoxin 0.5% cream; podotox cr/gel: podophyllotoxin 0.5% gel + cream; podotox gel: podophyllotoxin 0.5% gel; PDT: photodynamic therapy; mycobac intra: intralesional mycobacterium; KOH: potassium hydroxide; electro: electrosurgery; INF-1a intra: intralesional interferon-1 α ; INF-2b intra: intralesional interferon-2 β .

Appendix S8. Probabilities of treatment ranking. Sensitivity analyses: (A) Worst-case scenario, (B) Best-case scenario.

SUCRA: surface under the cumulative ranking curve. Cryo: cryotherapy; ablative: ablative treatment (surgery or electrosurgery or CO2 laser or cryotherapy); imi: imiquimod 5%; 5-FU: 5 fluorouracil; 5-FU intra: intralesional 5 fluorouracil; TCA: trichloroacetic acid; podo: podophyllin 20-25%; citric ac: citric acid 9%; polyph: polyphenon 15%; podotox cr: podophyllotoxin 0.5% cream; podotox cr/gel: podophyllotoxin 0.5% gel + cream; podotox gel: podophyllotoxin 0.5% gel; PDT: photodynamic therapy; mycobac intra: intralesional mycobacterium; KOH: potassium hydroxide; electro: electrosurgery; INF-1a intra: intralesional interferon-1 α ; INF-2b intra: intralesional interferon-2 β .

Appendix S1: Search terms used to screen all databases

MEDLINE and Web of Science

- 1 hpv.all
- 2 papillomavirus.all.
- 3 acuminat*.all.
- 4 condyloma*.all.
- 5 wart*.all.
- 6 genital wart*.all.
- 7 or/1-6
- 8 randomized controlled trial.all.
- 9 controlled clinical trial.all.
- 10 random*.all.
- 11 placebo.all.
- 12 clinical trial*.all.
- 13 trial.all.
- 14 or/8-13
- 15 7 AND 14
- 16 hand.all.
- 17 foot.all.
- 18 feet.all.
- 19 animal*.all.
- 20 nonhuman*.all.
- 21 child*.all.
- 22 cancer*.all.
- 23 neoplasia*.all.
- 24 cervical.all.
- 25 larynx*.all.
- 26 vacci*.all.
- 27 tumor.all.
- 28 verruc*.all.
- 29 or/ 16-28
- 30 15 NOT 29

SCOPUS.com

- #1.1 wart*:ab,ti
- #1.2 condylom*:ab,ti
- #1.3 acuminat*:ab,ti
- #1.4 verruc*:ab,ti
- #1.5 hpv:ab,ti
- #1.6 papillomavirus*:ab,ti
- #1.7 genital wart* :ab,ti
- #1.8 condylomata acuminata : ab,ti
- #1.9 wart virus:ab,ti
- #1.10 #1.1 OR #1.2 OR #1.3 OR #1.4 OR #1.5 OR #1.6 OR #1.7 OR #1.8 OR #1.9
- #1.11 clinical trial:ab,ti
- #1.12 random*:ab,ti
- #1.13 randomized controlled trial;ab,ti
- #1.14 controlled clinical:ab,ti
- #1.15 placebo*:ab,ti

#1.16 trial:ab,ti
#1.17 #1.11 OR #1.12 OR #1.13 OR #1.14 OR #1.15 OR #1.16
#1.18 #1.10 AND #1.17
#1.19 hand:ab,ti
#1.20 foot:ab,ti
#1.21 feet:ab,ti
#1.22 animal*:ab,ti
#1.23 nonhuman*:ab,ti
#1.24 child*:ab,ti
#1.25 cancer*:ab,ti
#1.26 neoplasia*:ab,ti
#1.27 cervical:ab,ti
#1.28 larynx*:ab,ti
#1.29 vacci*:ab,ti
#1.30 tumor:ab,ti
#1.31 verruc*:ab,ti
#1.32 #1.19 OR #1.20 OR #1.21 OR #1.22 OR #1.23 OR #1.24 OR #1.25 OR #1.26
OR #1.27 OR #1.28 OR #1.29 OR #1.30 OR #1.31
#1.33 #1.18 AND NOT #1.32

LILACS

(tw:(condylom*)) AND (tw:(Randomi*))

Ovid Platform

(condyloma OR acuminat OR wart) AND (clinical trial OR trial OR randomized trial
OR randomized controlled trial OR controlled clinical OR placebo OR Randomized
OR randomly)

Cochrane Library

(condyloma OR acuminata OR wart) and (randomized controlled trial OR controlled
clinical trial OR random OR placebo OR clinical trial) not (hand OR foot OR feet OR
animal OR nonhuman OR child OR cancer OR neoplasia OR cervical OR larynx OR
vacci OR tumor OR verruc) in Trials

Cochrane Register and International Clinical Trials Registry Platform (ICTRP):

Using the terms: warts, condylomas, condyloma, genital warts in title, abstract and
keywords.

Clinical Trials

Wart OR condylomas OR condyloma OR genital warts OR acuminata

EM-PREMIUM bibliography from 2010 in title and abstract:

English and french request: condylo*

English request: anogenital wart*

French request: verrue anogénitale*

Open Grey, SUDOC (title) and BABORD + bibliography (in French):

Condylome

Verrue

Appendix S2: Characteristics of RCTs included

Reference	Country	Intervention	No. of Patients randomized (analyzed)	Frequency	Modalities	Follow-Up (mo)	Outcomes	Comments
Abdullah 1993 ¹	UK	Cryo	53 (43)	1×/wk, maximum 6 wk	Applied with a cotton Q-tip until wart is frozen with 1-mm margin, 2×	3	Clearance after 6 wk, side effects	1 st treatment
Akhavan 2014 ²	Iran	TCA	33 (30)	Same	A pointed plastic probe	8	Clearance after 8 wk, recurrence after 3 mo, recurrence after 6 mo	1 st treatment, only women
		Podophyllin 20%	42 (38)	1×/wk, maximum 8 wk	NR			
		Imiquimod	42 (37)	3×/wk, maximum 8 wk	Same			
Arıcan 2004 ³	Turkey	Cryo	42 (36)	1×; no other information given	Same	9	Clearance after 3 mo, recurrence after 6 mo, side effects	ITT modified
		Imiquimod 5%	34 (33)	3×/wk, maximum 12 wk	Applied with the tip of the stick and then cleaned with abundant amounts of water			
Azizjalali 2012 ⁴	Iran	Placebo	11 (10)	Same	Same	3	Clearance after 6 wk, recurrence after 3 mo, side effects	ITT
		CO ₂ laser	80 (80)	1× every 2 wk, maximum 6 wk	Local anesthesia, 30 W, 10,600 nm, 4.5 J/cm ²			
Baker 2011 ⁵	USA	Cryo	80 (80)	Same	2 freezing cycles	4	Clearance after 4 mo, side effects	ITT, only women
		Imiquimod 2.5%	202 (139)	1×/d for 8 wk	Wash after 8 hr			
Benedetti Panici 1989 ⁶	Italy	Imiquimod 3.75%	204 (149)	Same	Same	12	Clearance after 1 mo, recurrence after 2.6 mo, side effects	ITT, only women, some patients with AGWs on cervix; IFN arm (data not shown)
		Placebo	105 (77)	Same	Same			
		Electro	51 (51)	Until apparent elimination of the genital wart, interval: 3 wk	Local anesthesia, diathermocoagulation with bipolar electrodes			
Beutner 1989 ⁷	USA	Placebo	48 (48)	NR	NR	4	Clearance after 6 wk, recurrence after 10 wk, side effects, new warts	ITT, only men
		Podophyllotoxin 0.5% gel	56 (56)	2×/d, 3 consecutive d, maximum 4 wk	NR			
		Placebo	53 (53)	Same	Same			

Appendix S2: Characteristics of RCTs included (continued)

Reference	Country	Intervention	No. of Patients randomized (analyzed)	Frequency	Modalities	Follow-Up (mo)	Outcomes	Comments
Beutner 1998 ⁸	USA	Imiquimod 5%	94 (69)	1×/d, maximum 16 wk	Wash after 8 hr with soap and water	7	Clearance after 8, 12, 16 wk, recurrence after 3 mo, side effects, partial clearance, time for complete clearance, new warts	ITT
		Imiquimod 1%	90 (71)	Same	Same			
		Placebo	95 (67)	Same	Same			
Bilensoy 2011 ⁹	Turkey	Placebo	6 (6)	3×/wk, 1 wk/2, maximum 12 wk	Applied with a cotton-tipped swab	6	Clearance after 12 wk, recurrence after 3 mo, partial clearance	ITT, only women; both 5-FU arms used with cyclodextrin thermosensitive gel
		5-FU cream	14 (14)	Same	Same			
		Placebo intra-lesional	6 (6)	Same	NR			
Bornstein 1997 ¹⁰	Israel	5-FU intra-lesional	18 (18)	Same	Same	6	Clearance after 12 wk, recurrence after 3 mo, partial clearance, time to complete clearance	ITT
		IFNβ-1a intra-lesional 1 MIU	30 (30)	3×/wk, maximum 3 wk	NR			
		Placebo intra-lesional	30 (30)	Same	Same			
Camargo 2014 ¹¹	Brazil	KOH	24 (20)	1×/d, maximum 12 wk	Applied with a cotton wrapped toothpick	3	Clearance after 12 wk, recurrence after 1 mo, side effects, time to complete clearance	1 st treatment, only men
		Cryo	24 (22)	Every 2 wk, maximum 12 wk	Freezing 1× 5-20 s			
Carpiniello 1988 ¹²	NR	CO ₂ laser	41 (NR)	NR		4	Clearance after treatment, recurrence after 4 mo	Only men
		CO ₂ laser + 5-FU	27 (NR)	5-FU every night maximum 30 d	5-FU initiated 1 wk after CO ₂ laser			
Chen 2007 ¹³	China	CO ₂ laser	21 (21)	1×/wk for 3 wk if not removed	topical anesthesia with 2% lidocaine	3	Clearance after 3 wk, recurrence after 2 mo, side effects	ITT, no quantification for side effects
		PDT	65 (65)	Same	ALA dissolved in sterile 0.9% NaCl just before application, 3 hr before light illumination (632 nm)			

Appendix S2: Characteristics of RCTs included (continued)

Reference	Country	Intervention	No. of Patients randomized (analyzed)	Frequency	Modalities	Follow-Up (mo)	Outcomes	Comments
Claesson 1996 ¹⁴	Sweden, Finland, France	Podophyllotoxin 0.15% cream	60 (60)	2×/d for 3 consecutive d, maximum 4 wk		4	Clearance after 4 wk, recurrence after 3 mo, side effects	ITT
		Podophyllotoxin 0.3% cream	60 (60)	Same				
		Podophyllotoxin 0.5% sol	60 (60)	Same				
Duus 1985 ¹⁵	Denmark	CO ₂ laser	25 (21)	1×, maximum 2×	Continuous wave (5-20 W), spot diameter of 0-7 mm	6	Clearance after treatment, recurrence after 3 mo, side effects	
		Ablative treatment (surgery, Electro)	25 (23)	1×, maximum 2×	NR			
Edwards 1998 ¹⁶	Multicentric: Hawaii, New York, Pennsylvania & Canada	Imiquimod 5%	109 (90)	3×/wk for 16 wk	Wash after 6-10 hr with soap and water	7	Clearance after 4 mo, recurrence after 3 mo, side effects, partial clearance	ITT
		Imiquimod 1%	102 (71)	Same	Same			
Edwards 1988 ¹⁷	UK	Placebo	100 (73)	Same	Same	6	Clearance after 6 wk, side effects	ITT, only men
		Podophyllotoxin 0.5% sol	32 (32)	2×/d for 3 consecutive d, maximum 6 wk	Self-applied			
		Podophyllin 20%	19 (19)	1×/wk, maximum 6 wk	Provider-applied			
Eron 1986 ¹⁸	USA	IFNα-2b (1 MIU) intra-lesional	147 (125)	NR	NR	7	Clearance after 4,16 wk; recurrence after 3 mo, side effects	
		Placebo intra-lesional	149 (132)	Same	Same			
Gabriel 1983 ¹⁹	UK	Podophyllin 25%	38 (29)	1×/wk, maximum 6 wk	Applied with the tip of the stick	3	Clearance after 6 wk, recurrence after 6 wk, side effect, time to complete clearance	Only men
		Podophyllin 25% + TCA 50%	35 (31)	Same	Same			

Appendix S2: Characteristics of RCTs included (continued)

Reference	Country	Intervention	No. of Patients randomized (analyzed)	Frequency	Modalities	Follow-Up (mo)	Outcomes	Comments
Gilson 2009 ²⁰	UK	Cryo + placebo	75 (40)	Cream 2×/d for 3 consecutive d, maximum 4 wk, Cryo: 45-s freezing/wk, maximum 12 wk	NR	9	Clearance after 3 mo, recurrence after 3 mo, side effects	ITT modified
		Cryo + podophyllotoxin 0.15% cream	74 (31)	Same	Same			
Godley 1987 ²¹	UK	TCA	69 (57)	1×/wk maximum 10 wk	Applied with an orange stick	4,5	Clearance after 10 wk; recurrence after 2 mo, side effects, time to complete clearance	Only men
		Cryo	61 (49)	Same	Freeze for 15 sec twice			
Greenberg 1991 ²²	USA	Podophyllotoxin 0.5% sol & cream	48 (48)	2×/d for 3 consecutive d, maximum 4 wk	Applied with a cotton tip		Clearance after 4 wk; recurrence after 2 mo, distinctive side effects for gel & cream, new warts	ITT modified, only women
Gross 2007 ²³	Germany & Russia	Placebo	24 (21)	Same	Same	6	Clearance after 12 wk, recurrence after 3 mo, side effects	
		Polyphenon 15%	80 (46)	3×/d, maximum 16 wk	NR			
Hellberg 1995 ²⁴	Sweden	Polyphenon 10%	79 (36)	Same	Same	4	Clearance after 4 wk; recurrence after 3 mo, side effects	Only women
		Placebo	83 (31)	Same	Same			
Isik 2014 ²⁵	Turkey	Podophyllotoxin 0.5% cream	30 (28)	2×/d for 3 consecutive d, maximum 4 wk	NR	6	Clearance after 3 mo, recurrence after 3 mo, partial clearance	ITT
		Podophyllin 20%	30 (27)	1×/wk, maximum 4 wk	Wash 4 hr after application			
		KOH	30 (30)	1×/d for 12 wk	Perilesional application of Vaseline			
		5-FU + salicylic acid	30 (30)	Same	Same			

Appendix S2: Characteristics of RCTs included (continued)

Reference	Country	Intervention	No. of Patients randomized (analyzed)	Frequency	Modalities	Follow-Up (mo)	Outcomes	Comments
Jensen 1985 ²⁶	Denmark	Podophyllin 25%	30 (30)	1×/wk, maximum 6 wk	Wash after 6 hr	12	Clearance after 4 wk; recurrence after 1.5, 4.5, 10.5 mo; side effects, time to complete clearance	ITT
		Surgery	30 (30)	Same	Local anesthesia with lignocaine			
Keay 1988 ²⁷	USA	IFNα cream	32 (31)	3×/d, maximum 4 wk	Applied topically by gentle 30-s rubbing	4	Clearance after 4, 16 wk, side effects	ITT modified, only women
		Placebo	33 (30)	Same	Same			
Khawaja 1989 ²⁸	UK	Podophyllin 25%	19 (19)	1×/wk, maximum 6 wk	Wash after 6 hr	10.5	Clearance after 6 wk, recurrence after 3, 9 mo; side effect, time to complete clearance	ITT, 1 st treatment
		Surgery	18 (18)	1×	Local anesthesia with lignocaine			
Kinghorn 1993 ²⁹	UK	Podophyllotoxin 0.5% sol	168 (138)	2×/d for 3 consecutive d, maximum 5 wk		3	Clearance after 54 wk; recurrence after 2 mo, side effects	
		Podophyllin 25%	84 (62)	2×/wk, maximum 5 wk	Wash off after 4 hr			
Kirby 1990 ³⁰	USA	Podophyllotoxin 0.5% sol	19 (19)	2×/d for 3 consecutive d, maximum 4 wk	NR	4	Clearance after 4 wk; recurrence after 3 mo, side effects	ITT
		Placebo	19 (19)	Same	Same			
Komericki 2011 ³¹	Austria	Podophyllotoxin 0.5% sol	26 (25)	2×/d for 3 consecutive d, maximum 4 wk	NR	4	Clearance after 4 wk for podophyllotoxin and 16 wk for imiquimod, side effects	1 st treatment
		Imiquimod 5%	25 (20)	3×/wk maximum 16 wk	Same			
Kumar 2014 ³²	India	Imiquimod 5%	44 (41)	3×/wk, maximum 16 wk	Intradermal injections of the Mw vaccine and vehicle on both shoulders at baseline to sensitize and improve local immune response to intralesional therapy	8	Clearance after 20 wk; recurrence after 3 mo, side effects, time to complete clearance, partial clearance	ITT
		<i>Mycobacterium</i> intra-lesional	45 (39)	Every 2 wk, maximum 16 wk	–			

Appendix S2: Characteristics of RCTs included (continued)

Reference	Country	Intervention	No. of Patients randomized (analyzed)	Frequency	Modalities	Follow-Up (mo)	Outcomes	Comments
Lacey 2003 ³³	UK	Podophyllin 25%	116 (96)	2×/wk, maximum 4 wk	In the clinic	4	Clearance after 4 wk; recurrence after 3 mo, side effects, cost/efficacy ratio	
		Podophyllotoxin 0.15% cream	118 (82)	2×/d for 3 consecutive d, maximum 4 wk	NR			
		Podophyllotoxin 0.5% sol	120 (98)	Same	Same			
Lassus 1987 ³⁴	Finland	Podophyllotoxin 0.5% sol	48 (48)	2×/d for 3 consecutive d, maximum 4 wk	At home	3	Clearance after 4 wk; recurrence after 2 mo	ITT, only men
		Podophyllin 20%	52 (52)	1×/wk, maximum 4 wk	In the clinic			
Lottfabadi 2015 ³⁵	Iran	Cryo	34 (34)	Every 2 wk, maximum 12 wk	Freeze with 1-mm margin, 10-15 s	6	Clearance 1 mo after 12 wk of treatment; recurrence after 2 mo; side effects	
		TCA	34 (34)	Same	Applied by an applicator then washed			
Mahajan 2014 ³⁶	India	Cryo + podophyllin 20%	30 (24)	Cryo once & podo every 2 wk	Cryo: freezing with a 5-mm margin from a distance of 2-mm Podo: Wash 3 hr after therapy	6	Clearance after 8, 12, 24 wk; recurrence after 1 mo; side effects; time to complete clearance	
		Bleomycin + placentrex intra-lesional	30 (25)	Bleomycin every 2 wk, maximum 10 wk; placentrex every night	After bleomycin, ice water soaks twice daily for 4 d			
Mazurkiewicz 1990 ³⁷	Poland	Podophyllin 20%	16 (13)	Once/wk, maximum 6 wk	Doctor-applied	1,5	Clearance after 6 wk, side effects	
		Podophyllotoxin 0.5% sol	16 (14)	2×/d for 3 consecutive d, maximum 6 wk	Patient-applied			
		Podophyllotoxin 0.5% cream	22 (16)	Same	Same			

Appendix S2: Characteristics of RCTs included (continued)

Reference	Country	Intervention	No. of Patients randomized (analyzed)	Frequency	Modalities	Follow-Up (mo)	Outcomes	Comments
Nath 1990 ³⁸	India	Podophyllin 25%	50 (47)	1×/wk, maximum 12 wk	Wash after 2 hr	6	Clearance after 3 mo, recurrence after 3 mo, time to complete clearance	Incompletely randomization (pregnant women got TCA)
On 2014 ³⁹	USA	TCA 50% Polyphenon 15% + cryo	50 (48) 21 (NR)	Same Polyphenon: 2×/d, maximum 16 wk; Cryo: 1×	Applied with a swab stick Cryo: 2 5-s cycles/5-s interval rest	16	Clearance after 9 & 17 wk, side effects, partial clearance	ITT
Ormerod 2015 ⁴⁰	Germany, UK, Holland, Switzerland, Poland: 40 centers	Cryo	21 (NR)	1×	Same	6	Clearance after 3 mo, recurrence after 3 mo, side effects, time to complete clearance	
		Placebo	75 (74)	2×/d for 12 wk	Sodium nitrite was applied first, then citric acid, & the 2 creams were mixed.			
		Sodium nitrite 3% + citric acid 4.5%	74 (72)	2×/d for 12 wk	Same			
		Sodium nitrite 6% + citric acid 9%	77 (74)	1×/d for 12 wk	Same			
		Sodium nitrite 6% + citric acid 9%	73 (70)	2×/d for 12 wk	Same			
Padhiar 2006 ⁴¹	India	Imiquimod 5%	30 (30)	3×/wk, maximum 16 wk	Wash after 6-10 hr	10	Clearance after 4 mo, recurrence after 3 & 6 mo, side effects, partial clearance, time to complete clearance	ITT
		Podophyllin 20%	30 (30)	1×/wk, maximum 6 wk	Applied with a swab stick, wash after 4-6 hr			
Petersen 1995 ⁴²	Denmark	Podophyllotoxin 0.5% sol	18 (18)	2×/d for 3 consecutive d, maximum 4 wk	Fingertip application	3	Clearance after 6 wk, recurrence after 6 wk, side effects	ITT, only men, individual lesion analysis
		Podophyllotoxin 0.5% cream	18 (18)	Same	Same			
Reichman 1988 ⁴³	USA	IFNα-n1 intra-lesional	17 (15)	3×/wk, maximum 4 wk	NR	12	Clearance after 5, 10 & 15 wk, side effects; time to complete clearance	
		IFNβ (1 MIU) intra-lesional	20 (20)	Same	Same			

Appendix S2: Characteristics of RCTs included (continued)

Reference	Country	Intervention	No. of Patients randomized (analyzed)	Frequency	Modalities	Follow-Up (mo)	Outcomes	Comments
Reichman 1988 ⁴³ (continued)		IFNα-2b intra-lesional	23 (23)	Same	Same		Clearance after 5, 10 & 15 wk, side effects; time to complete clearance	
		Placebo intra-lesional	19 (18)	Same	Same			
Relakis 1996 ⁴⁴	Brazil & Greece	CO ₂ laser	71 (71)	1×	Applied Vaseline & ZnO ₂ 10% cream	12	Clearance after 3 mo, recurrence after 3, 6 & 9 mo, side effects	ITT, only men
		5-FU	218 (218)	5×/wk, maximum 4 wk	Applied Vaseline 5% ZnO ₂ , before 5-FU			
Schofer 2006 ⁴⁵	Germany	CO ₂ laser + 5-FU Ablative procedure (Electro, Cryo, laser, surgery)	47 (47) 100 (100)	Both 1×/wk, maximum 4 wk	Both NR	6	Clearance after 4 wk, recurrence after 3 & 6 mo, side effects	ITT
		Imiquimod 5%	155 (155)	3×/d, maximum 16 wk	Same			
		Ablative procedure + imiquimod	103 (103)	Both	Same			
Sherrard 2007 ⁴⁶	UK	Podophyllin 25%	79 (56)	Times/wk NR, but maximum 8 wk	NR	2	Clearance after 8 wk, side effects	
		TCA	88 (58)	Same	Same			
		Cryo	81 (66)	Same	Same			
		TCA + Podophyllin	85 (65)	Same	Same			
		Cryo + Podophyllin	76 (59)	Same	Same			
Simmons 1981 ⁴⁷	UK	Cryo	24 (16)	1× every 2 wk, maximum 12 wk	Produced 2-mm ice-balls larger than wart	3	Clearance after 12 wk	
		Electro	18 (11)	1× every 2 wk, maximum 12 wk	2% lignocaine anesthesia			
Snoeck 2001 ⁴⁸	Belgium	Cidofovir	19 (19)	1×/d, 5 d/wk, 1 wk/2 for 12 wk	Applied with a cotton tipped swab or a rubber glove		Clearance after 3 mo, recurrence after 3 mo, side effects, partial clearance	ITT
		Placebo	11 (11)	Same	Same			

Appendix S2: Characteristics of RCTs included (continued)

Reference	Country	Intervention	No. of Patients randomized (analyzed)	Frequency	Modalities	Follow-Up (mo)	Outcomes	Comments
Stefanaki 2008 ⁴⁹	Greece	Imiquimod	60 (35)	3×/wk, maximum 12 wk	NR	12	Clearance after 4, 8, 12 & 24 wk, recurrence after 9 mo, side effects	1 st treatment
		Cryo	60 (45)	1× every 3 wk, maximum 12 wk	Frozen 1× for 10-20 s			
Stockfelth 2008 ⁵⁰	Multicentric (Europe, South Africa)	Polyphenon 15%	201 (161)	3×/d, maximum 16 wk	NR	7	Clearance after 3 mo, recurrence after 3 mo, side effects, partial clearance, time to complete clearance	ITT modified
		Polyphenon 10%	199 (170)	Same	Same			
Stone 1990 ⁵¹	USA	Placebo	103 (80)	Same	Same	5	Clearance after 6 wk, recurrence after 3 mo, side effects	
		Podophyllin (dose NR)	144 (53)	Times/week NR, but maximum 6 wk	NR			
Strand 1995 ⁵²	Sweden	Cryo	154 (60)	1×/wk, maximum 6 wk	Each AGW was frozen 1×	4	Clearance after 4 wk; recurrence after 3 mo, side effects	ITT, only men
		Electro Podophyllotoxin 0.15% cream	152 (51) 30 (30)	Same 2×/d for 3 consecutive d, maximum 4 wk	1% lidocaine anesthesia Applied with an applicator			
		Podophyllotoxin 0.3% cream	31 (31)	Same	Same			
Swinehart 1997 ⁵³	USA	Podophyllotoxin 0.5% sol	29 (29)	Same	NR	5	Clearance after 8 wk, recurrence after 3 mo, side effects, partial clearance, time to complete clearance	Individual lesion analysis
		5-FU injection intra-lesional	80 (78)	1×/wk, maximum 6× over 8 wk	NR			
		5-FU Placebo	80 (76) 40 (33)	NR Same	Same Same			
Syed 1998 ⁵⁴	Pakistan	Imiquimod 2%	30 (30)	2×/d for 5 consecutive d, maximum 6 wk	Wash & dry warts before each application and apply	4	Clearance after 6 wk, recurrence after 2.5 mo, side effects	ITT, only women, individual lesion analysis
		Placebo	30 (30)	Same	Same			

Appendix S2: Characteristics of RCTs included (continued)

Reference	Country	Intervention	No. of Patients randomized (analyzed)	Frequency	Modalities	Follow-Up (mo)	Outcomes	Comments
Syed 1995 (a) ⁵⁵	Pakistan	IFN α cream	20 (20)	3 \times /d for 3 consecutive d, maximum 4 wk	Applied with a finger cot	4	Clearance after 4 wk, recurrence after 9 mo, side effects	ITT, only men, individual lesion analysis
		Podophyllotoxin 0.5% cream	20 (20)	Same	Same			
Syed 1995 (b) ⁵⁶	Pakistan	Placebo	20 (20)	Same	Same	4	Clearance after 4 wk, side effects	ITT, only women, individual lesion analysis
		IFN α cream	20 (20)	3 \times /d for 3 consecutive d, maximum 4 wk	Applied with a finger cot			
Syed 1994 ⁵⁷	Pakistan	Podophyllotoxin 0.5% cream	20 (20)	Same	Same	4	Clearance after 4 wk, recurrence after 3 mo, side effects	ITT, only women, individual lesion analysis
		Placebo	20 (20)	Same	Same			
		Podophyllotoxin 0.3% cream	30 (30)	2 \times /d for 3 consecutive d, maximum 4 wk	Let dry for at least 1 min without washing			
Syed 2000 ⁵⁸	Pakistan	Podophyllotoxin 0.5% cream	30 (30)	Same	Same	18	Clearance after 16 wk, recurrence after 18 mo, side effects	ITT, only men, individual lesion analysis
		Placebo	20 (20)	Same	Same			
Szeimies 2009 ⁵⁹	Germany	Imiquimod 2%	30 (30)	3 consecutive d, maximum 4 wk	Applied with a finger cot	12	Clearance after treatment, recurrence after 1, 2, 3, 6 & 12 mo, side effects, satisfaction	ITT
		Placebo	30 (30)	Same	Same			
Tabari 2010 ⁶⁰	Iran	PDT + CO ₂ laser	84 (84)	1 \times	PDT: 100 J/cm ² , 100 mW/cm ² (640-740 nm) occlusion for 4-6 hr	6	Clearance after 4 or 8 wk, recurrence after 3 mo, side effects	ITT
		CO ₂ laser	91 (91)	Same	Continuous wave, defocused beam (2-mm diameter), 10-20 W, general or local anesthesia			
Tabari 2010 ⁶⁰	Iran	Podophyllin 20%	60 (60)	2 \times /wk	Wash after 20 min	6	Clearance after 4 or 8 wk, recurrence after 3 mo, side effects	ITT
		TCA 30%	60 (60)	NR	With a topical cotton soap and washed after 1 min			

Appendix S2: Characteristics of RCTs included (continued)

Reference	Country	Intervention	No. of Patients randomized (analyzed)	Frequency	Modalities	Follow-Up (mo)	Outcomes	Comments
Tatti 2008 ⁶¹	USA, Europe, S Africa multicenter	Polyphenon 15%	196 (159)	3×/d, maximum 16 wk	NR	7	Clearance after 16 wk, recurrence after 3 mo, side effects, partial clearance	ITT modified
		Polyphenon 10%	202 (162)	Same	Same			
Tyring 1998 (a) ⁶²	USA	Placebo	104 (83)	Same	Same	4	Clearance after 16 wk, side effects, partial clearance	
		Imiquimod 5%	18 (16)	3×/wk, maximum 16 wk	Applied with cotton swab tip			
Tyring 1998 (b) ⁶³	USA	Placebo	4 (3)	Same	Same	4	Clearance after 4 & 8 wk, recurrence after 3 mo, side effects	
		Placebo	107 (95)	2×/d for 3 consecutive d, maximum 8 wk	NR			
Vance 1986 ⁶⁴	USA	Podophyllotoxin 0.5% gel	219 (197)	Same	Same	3	Clearance after 4, 5, 7 & 12 wk, side effects, partial clearance	ITT
		IFNα-2b (1 MIU) intra-lesional	37 (30)	3×/wk, maximum 3 wk	NR			
		IFNα-2b (0.1 MIU) intra-lesional	38 (32)	Same	Same			
von Krogh 1992 ⁶⁵	Sweden	Placebo intra-lesional	39 (29)	Same	Same	3	Clearance after 3 wk, recurrence after 2 mo, side effects	
		Placebo	12 (11)	2×/d, 3 d/wk for 2 wk	NR			
von Krogh 1994 ⁶⁶	Sweden	Podophyllotoxin 0.5% cream	48 (44)	Same	Same	6	Clearance after 3 wk, recurrence after 2 & 6 mo, side effects	1 st treatment
		Podophyllotoxin 0.25% sol	19 (18)	2×/d, 3 d/wk for 2 wk	Applied with wool swabs			
		Podophyllotoxin 0.5% sol	19 (16)	Same	Same			
Wallin 1977 ⁶⁷	Sweden	Placebo	19 (17)	Same	Same	9	Clearance after 4 wk, recurrence after 6 mo, side effects	Only men
		5-FU	21 (18)	1×/d for 2 wk	Applied with cotton swab tip			
		Podophyllin 25% sol	21 (19)	1×/wk for 4 wk	Provider-applied, wash 4-6 hr later			

Appendix S2: Characteristics of RCTs included (continued)

Reference	Country	Intervention	No. of Patients randomized (analyzed)	Frequency	Modalities	Follow-Up (mo)	Outcomes	Comments
Weismann 1982 ⁶⁸	Denmark	5-FU	30 (30)	2×/wk for women, once/d for men	NR	2	Clearance after 8 wk, side effects, partial clearance, time to complete clearance	ITT
Welander 1990 ⁶⁹	USA	Placebo	29 (29)	Same	Same	NR	Clearance after 4 or 15 wk, side effects	
		IFNα-2b (1 MIU) intra-lesional	20 (16)	3×/wk, maximum 3 wk	NR			
White 1997 ⁷⁰	UK	Placebo intra-lesional	22 (21)	Same	Same	3	Clearance after 5 wk, side effects	ITT, only men, 1 st treatment
		Podophyllotoxin 0.5% sol	106 (77)	2×/d for 3 consecutive d, maximum 12 wk	NR			
		Podophyllin 0.5%	103 (86)	Same	Same			
		Podophyllin 2%	106 (81)	Same	Same			

Abbreviations: ITT, intention-to-treat; NR, not reported; KOH, potassium hydroxide; ALA, 5-aminolaevulinic acid; Mw, *Mycobacterium w*; Sol, solution; PDT, photodynamic therapy; Electro, electro-surgery; Cryo, cryotherapy; IFN, interferon.

Appendix S3: Reason for exclusion

1st Author	Year	Exclusion Criteria
Alfonso-Trujillo ⁷¹	2008	not RCT
Alfonso-Trujillo ⁷²	2008	not RCT
Alfonso-Trujillo ⁷³	2009	not RCT
Alfonso-Trujillo ⁷⁴	2009	not RCT
Arany ⁷⁵	1999	duplicate of Tying ⁶²
Armstrong ⁷⁶	1996	another treatment not considered herein
Bar-Am ⁷⁷	1993	dose escalation
Bashi ⁷⁸	1985	not RCT
Beutner ⁷⁹	1998	duplicate of Beutner ⁸
Beutner ⁸⁰	1995	duplicate of Beutner ⁸
Botacini ⁸¹	1993	other localization
Buck ⁸²	2002	not RCT
Chen ⁸³	2009	missing data (no English translation of Chinese)
Chopra ⁸⁴	1997	duplicate of Tying ⁶²
Collaborative Study Group ⁸⁵	1991	another treatment not considered herein
Collaborative Study Group ⁸⁶	1993	another treatment not considered herein
Damstra ⁸⁷	1991	missing data
Davidson-Parker ⁸⁸	1988	another treatment not considered herein
Dinsmore ⁸⁹	1997	not RCT
Douglas ⁹⁰	1990	HIV
Edwards ⁹¹	1998	duplicate of Edwards ¹⁷
Edwards ⁹²	1995	duplicate of Edwards ¹⁷
Eron ⁹³	1993	another treatment not considered herein
Ferenczy ⁹⁴	1998	duplicate of Edwards ¹⁷
Ferenczy ⁹⁵	1995	HIV
Fife ⁹⁶	2001	dose escalation
Fleshner ⁹⁷	1994	another treatment not considered herein
Fouere ⁹⁸	2014	missing data
Garland ⁹⁹	2006	dose escalation
Garland ¹⁰⁰	2001	not RCT
Goh ¹⁰¹	1998	dose escalation
Gollnick ¹⁰²	2001	dose escalation
Gross ¹⁰³	1996	another treatment not considered herein
Gross ¹⁰⁴	1998	another treatment not considered herein
Handley ¹⁰⁵	1991	another treatment not considered herein
Handley ¹⁰⁶	1992	missing data (randomization unclear)
Hohenleutner ¹⁰⁷	1990	another treatment not considered herein
Hoy ¹⁰⁸	2012	not RCT
IRCT2017011531949N1 ¹⁰⁹	2017	missing data (recruiting)
IRCT2015090514386N1 ¹¹⁰	2015	missing data (not recruiting)
IRCT2013111015364N1 ¹¹¹	2014	missing data (not recruiting)
IRC 201202138992N1 ¹¹²	2012	not RCT
IRCT201412207848N1 ¹¹³	2014	not RCT
Jardine ¹¹⁴	2012	another treatment not considered herein
Klutke ¹¹⁵	1995	another treatment not considered herein
Lafuma ¹¹⁶	2003	duplicate of Tying ⁶² and Edwards ¹⁷
Landthaler ¹¹⁷	1987	HIV
Langley ¹¹⁸	2010	not RCT
Lassus ¹¹⁹	1984	duplicate of Lassus ³⁴
Li ¹²⁰	2011	dose escalation
Liang ¹²¹	2009	missing data (condyloma analysis)

Appendix S3: Continued

Liu ¹²²	2012	missing data (condyloma analysis)
Maiti ¹²³	1985	dose escalation
Maw ¹²⁴	2002	not RCT
Mazurkiewicz ¹²⁵	1990	missing data (not accessible)
Meltzer ¹²⁶	2009	not RCT and duplicate of Stockfleth ⁴⁹
Metaweia ¹²⁷	2005	not RCT
Mi ¹²⁸	2011	missing data (condyloma analysis)
Mistrangelo ¹²⁹	2010	another treatment not considered herein
Monsonogo ¹³⁰	1996	missing data (condyloma analysis)
NCT00674739 ¹³¹	2011	duplicate of Baker ⁵
NCT00735462 ¹³²	2011	duplicate of Baker ⁵
NCT02520986 ¹³³	2016	missing data (not recruiting)
NCT02724254 ¹³⁴	2016	missing data (recruiting)
NCT01796821 ¹³⁵	2017	missing data (recruiting)
NCT03153566 ¹³⁶	2017	missing data (recruiting)
NCT01943630 ¹³⁷	2017	missing data (recruiting)
NCT02849262 ¹³⁸	2016	missing data (recruiting)
NCT02462187 ¹³⁹	2015	missing data (not recruiting)
NCT02482428 ¹⁴⁰	2015	missing data (not recruiting)
NCT02147353 ¹⁴¹	2014	missing data (not recruiting)
NCT02015260 ¹⁴²	2013	missing data (not recruiting)
Nieminen ¹⁴³	1994	another treatment not considered herein
Owens ¹⁴⁴	1999	duplicate of Edwards ¹⁷
Potocnik ¹⁴⁵	1997	missing data (not accessible)
Rosen ¹⁴⁶	2015	missing data (no placebo data)
Sauder ¹⁴⁷	2003	duplicate from of Edwards ¹⁷
Sharma ¹⁴⁸	2017	missing data (condyloma analysis)
Shi ¹⁴⁹	2013	not RCT
Stefanaki ¹⁵⁰	2014	missing data
Stellato ¹⁵¹	1997	another treatment not considered herein
Swinehart ¹⁵²	1997	duplicate from Swinehart ⁵³
Syed ¹⁵³	2002	missing data (not accessible)
Syed ¹⁵⁴	1994	other localization
Syed ¹⁵⁵	1993	dose escalation
Trofatter ¹⁵⁶	2002	dose escalation
Tuncel ¹⁵⁷	2005	missing data
Urban ¹⁵⁸	2006	missing data (not accessible)
Vesterinen ¹⁵⁹	1984	other localization
Viazis ¹⁶⁰	2007	HIV and other localization
von Krogh ¹⁶¹	1981	not RCT
Xu ¹⁶²	2009	missing data (no English translation of Chinese)
Yaghoobi ¹⁶³	2014	not RCT
Yin ¹⁶⁴	1998	another treatment not considered herein
Yu ¹⁶⁵	2004	another treatment not considered herein
Zarcone ¹⁶⁶	1996	not RCT
Zervoudis ¹⁶⁷	2010	another treatment not considered herein

Abbreviations: RCT: randomized-controlled trial; HIV: human immunodeficiency virus

Appendix S4. Risk of bias assessment (Bertolotti et al. *J Am Acad Dermatol* 2019.pii:S0190-9622(19)30525-0)

Study	Abdullah 1993	Akhavan 2014	Arican 2004	Azizjalali 2012	Baker 2011	Benedetti 1989	Beutner 1989	Beutner 1998	Bilensoy 2011	Bornstein 1997	Camargo 2014	Carpiniello 1988	Chen 2007	Claesson 1996	Duus 1985	Edwards 1998	Edwards 1988	Eron 1986	Gabriel 1983	Gilson 2009	Godley 1987	Greenberg 1991	Gross 2007	Hellberg 1995	Isik 2014	Jensen 1985	Key 1988	Khawaja 1989	Kinghorn 1993	Kirby 1990	Komericki 2011	Kumar 2014	Lacey 2003	Lassus 1987	Loffabadi 2015				
(1)																																							
(2)																																							
(3)																																							
(4)																																							
(5)																																							
(6)																																							
(7)																																							

Study	Mahajan 2014	Mazurkiewicz 1990	Nath 1990	Ormerod 2015	On 2014	Padhiar 2006	Petersen 1995	Reichman 1988	Relakis 1996	Schofer 2006	Sherrard 2007	Simmons 1981	Snoeck 2001	Stefanaki 2008	Stockfleth 2008	Stone 1990	Strand 1995	Swinehart 1997	Syed 1995 a	Syed 1995 b	Syed 1998	Syed 1994	Syed 2000	Szeimies 2009	Tabari 2010	Tatti 2008	Tyring 1998 a	Tyring 1998 b	Vance 1986	Von Krogh 1992	Von Krogh 1994	Wallin 1977	Weismann 1982	Welander 1990	White 1997				
(1)																																							
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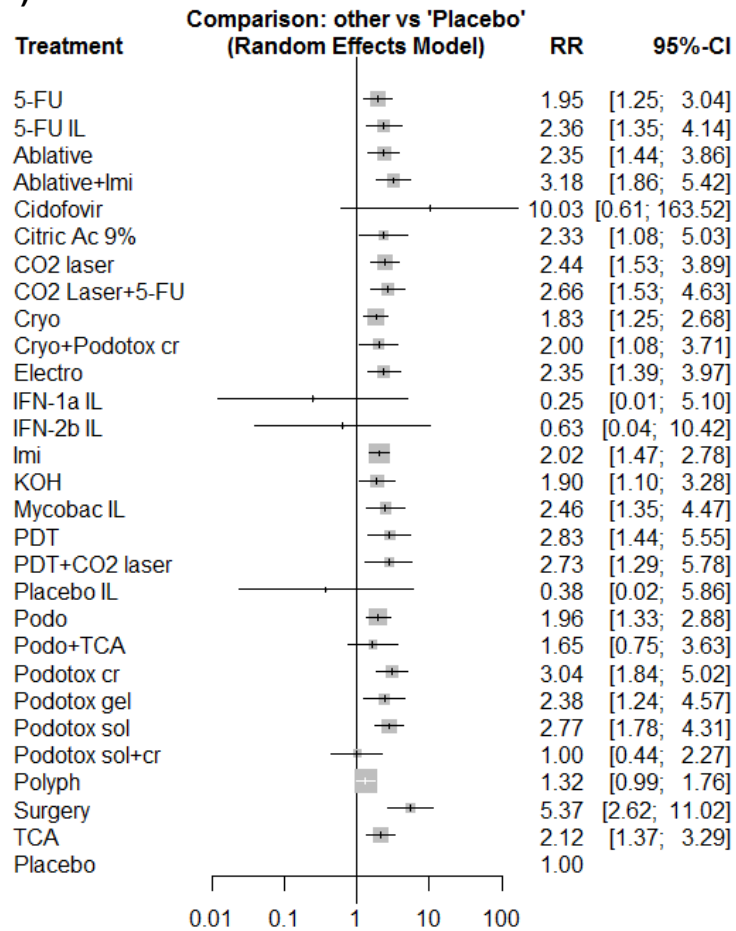
White square: low; grey square: uncertain; black square: high; (1) Random sequence generation (selection bias); (2) Allocation concealment (selection bias); (3) Blinding of participants and personnel (performance bias); (4) Blinding of outcome assessment (detection bias); (5) Incomplete outcome data (attrition bias); (6) Selective reporting (reporting bias); (7) Other bias.

Appendix S5. Network meta-analysis estimates (lower triangle) and direct estimates (upper triangle) of complete lesion response for all therapies.

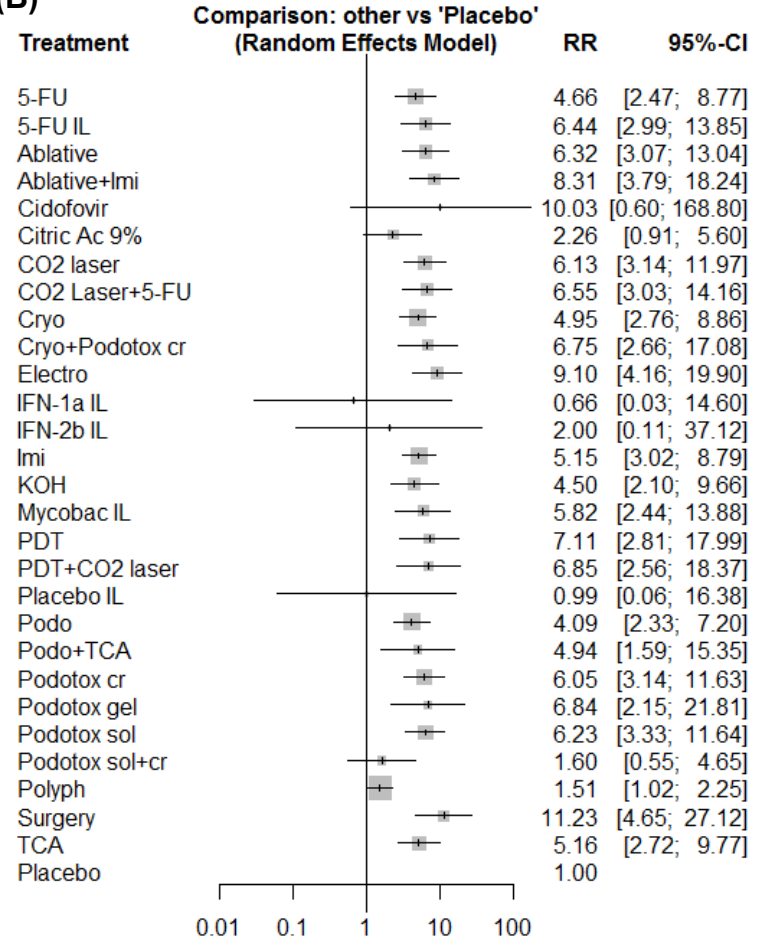
	Surgery	Ablative+Imi	Electro	Cidofovir	PDT	Podotox gel	PDT+CO2 laser	CO2 Laser+5-FU	Podotox sol	Mycobac IL	CO2 laser	Podotox cr	Ablative	ryo+Podotox cr	Imi	TCA	KOH	5-FU	Cryo	Polyph
Surgery																				
Ablative+Imi	1.40 [0.56; 3.52]												1.36 [0.78; 2.40]		1.55 [0.88; 2.73]					
Electro	1.48 [0.63; 3.47]	1.06 [0.48; 2.35]																	1.21 [0.68; 2.14]	
Cidofovir	1.05 [0.06; 19.79]	0.75 [0.04; 13.68]	0.71 [0.04; 12.88]																	
PDT	1.62 [0.59; 4.46]	1.15 [0.47; 2.83]	1.09 [0.45; 2.67]	1.54 [0.08; 29.12]							1.16 [0.64; 2.09]									
Podotox gel	1.56 [0.38; 6.38]	1.11 [0.29; 4.25]	1.05 [0.28; 3.99]	1.49 [0.07; 30.68]	0.96 [0.23; 3.98]															
PDT+CO2 laser	1.68 [0.58; 4.87]	1.20 [0.46; 3.11]	1.13 [0.44; 2.93]	1.60 [0.08; 30.75]	1.04 [0.42; 2.54]	1.07 [0.25; 4.61]					1.12 [0.57; 2.19]									
CO2 Laser+5-FU	1.74 [0.71; 4.32]	1.24 [0.57; 2.74]	1.18 [0.54; 2.55]	1.66 [0.09; 30.23]	1.08 [0.51; 2.30]	1.12 [0.29; 4.26]	1.04 [0.46; 2.38]				1.31 [0.80; 2.16]								1.14 [0.65; 2.00]	
Podotox sol	1.86 [0.90; 3.87]	1.33 [0.65; 2.73]	1.26 [0.67; 2.67]	1.77 [0.10; 31.38]	1.15 [0.50; 2.66]	1.19 [0.33; 4.27]	1.11 [0.45; 2.73]	1.07 [0.53; 2.16]				1.00 [0.47; 2.13]								
Mycobac IL	1.83 [0.69; 4.88]	1.31 [0.57; 2.97]	1.23 [0.52; 2.95]	1.74 [0.09; 32.37]	1.13 [0.42; 3.06]	1.17 [0.29; 4.67]	1.09 [0.38; 3.11]	1.05 [0.43; 2.56]	0.98 [0.44; 2.18]						1.21 [0.65; 2.25]					
CO2 laser	1.88 [0.82; 4.28]	1.34 [0.68; 2.63]	1.26 [0.64; 2.48]	1.78 [0.10; 31.81]	1.16 [0.64; 2.09]	1.20 [0.33; 4.36]	1.12 [0.57; 2.19]	1.08 [0.67; 1.73]	1.01 [0.55; 1.83]	1.02 [0.46; 2.28]			0.94 [0.45; 1.96]					0.75 [0.42; 1.35]	2.40 [1.29; 4.46]	
Podotox cr	1.88 [0.83; 4.25]	1.34 [0.61; 2.95]	1.27 [0.61; 2.61]	1.79 [0.10; 31.88]	1.16 [0.47; 2.86]	1.21 [0.33; 4.37]	1.12 [0.43; 2.93]	1.08 [0.50; 2.34]	1.01 [0.60; 1.68]	1.03 [0.44; 2.42]	1.00 [0.51; 1.98]									
Ablative	1.88 [0.78; 4.50]	1.34 [0.78; 2.31]	1.26 [0.60; 2.66]	1.79 [0.10; 32.16]	1.16 [0.52; 2.60]	1.20 [0.32; 4.47]	1.12 [0.47; 2.68]	1.08 [0.54; 2.16]	1.01 [0.52; 1.95]	1.03 [0.46; 2.26]	1.00 [0.58; 1.74]	1.00 [0.48; 2.08]			1.14 [0.64; 2.02]					
Cryo+Podotox cr	1.95 [0.74; 5.14]	1.39 [0.56; 3.42]	1.31 [0.57; 3.00]	1.85 [0.10; 34.86]	1.20 [0.45; 3.21]	1.25 [0.30; 5.10]	1.16 [0.41; 3.26]	1.12 [0.46; 2.68]	1.04 [0.47; 2.30]	1.06 [0.40; 2.80]	1.04 [0.47; 2.27]	1.03 [0.44; 2.44]	1.04 [0.44; 2.43]						1.25 [0.66; 2.37]	
Imi	2.22 [1.04; 4.76]	1.58 [0.92; 2.73]	1.50 [0.81; 2.76]	2.11 [0.12; 36.76]	1.37 [0.63; 2.99]	1.42 [0.41; 4.89]	1.32 [0.57; 3.08]	1.27 [0.67; 2.42]	1.19 [0.72; 1.97]	1.21 [0.65; 2.25]	1.18 [0.71; 1.97]	1.18 [0.65; 2.14]	1.18 [0.72; 1.94]	1.14 [0.54; 2.41]					0.95 [0.59; 1.53]	
TCA	2.28 [1.09; 4.75]	1.62 [0.81; 3.25]	1.53 [0.85; 2.78]	2.17 [0.12; 38.41]	1.41 [0.63; 3.14]	1.46 [0.41; 5.23]	1.36 [0.57; 3.24]	1.31 [0.67; 2.54]	1.22 [0.76; 1.96]	1.24 [0.57; 2.70]	1.21 [0.70; 2.10]	1.21 [0.67; 2.19]	1.21 [0.65; 2.27]	1.17 [0.56; 2.43]	1.03 [0.64; 1.64]					1.10 [0.71; 1.71]
KOH	2.48 [1.02; 6.01]	1.77 [0.79; 3.93]	1.67 [0.79; 3.51]	2.35 [0.13; 42.81]	1.53 [0.65; 3.59]	1.59 [0.42; 6.01]	1.48 [0.59; 3.68]	1.42 [0.71; 2.84]	1.33 [0.67; 2.62]	1.35 [0.56; 3.27]	1.32 [0.71; 2.45]	1.32 [0.62; 2.80]	1.32 [0.63; 2.74]	1.27 [0.55; 2.96]	1.11 [0.59; 2.09]	1.09 [0.58; 2.05]			0.95 [0.49; 1.84]	1.02 [0.50; 2.07]
5-FU	2.44 [1.07; 5.56]	1.74 [0.85; 3.57]	1.64 [0.83; 3.26]	2.32 [0.13; 41.05]	1.50 [0.71; 3.17]	1.56 [0.44; 5.59]	1.45 [0.64; 3.28]	1.40 [0.84; 2.32]	1.31 [0.72; 2.37]	1.33 [0.59; 3.02]	1.30 [0.82; 2.05]	1.29 [0.66; 2.54]	1.30 [0.69; 2.45]	1.25 [0.56; 2.80]	1.10 [0.64; 1.88]	1.07 [0.61; 1.87]	0.98 [0.58; 1.68]			
Cryo	2.43 [1.17; 5.03]	1.73 [0.92; 3.27]	1.64 [0.97; 2.76]	2.31 [0.13; 40.54]	1.50 [0.71; 3.15]	1.56 [0.44; 5.45]	1.45 [0.64; 3.26]	1.39 [0.77; 2.53]	1.30 [0.82; 2.06]	1.33 [0.64; 2.74]	1.29 [0.82; 2.04]	1.29 [0.73; 2.29]	1.29 [0.74; 2.26]	1.25 [0.66; 2.37]	1.09 [0.75; 1.60]	1.07 [0.75; 1.51]	0.98 [0.57; 1.70]	1.00 [0.61; 1.62]		
Polyph	7.07 [2.82; 17.72]	5.04 [2.24; 11.37]	4.76 [2.13; 10.63]	6.73 [0.40; 114.51]	4.37 [1.72; 11.12]	4.53 [1.39; 14.78]	4.22 [1.57; 11.35]	4.05 [1.81; 9.09]	3.79 [1.89; 7.61]	3.86 [1.61; 9.30]	3.77 [1.82; 7.79]	3.76 [1.82; 7.75]	3.77 [1.75; 8.10]	3.63 [1.45; 9.12]	3.19 [1.71; 5.94]	3.11 [1.54; 6.27]	2.86 [1.28; 6.36]	2.90 [1.44; 5.86]	2.91 [1.51; 5.63]	

Appendix S6. Forest plot of the estimates of relative risk between each treatment and the reference placebo for complete lesion response. Sensitivity analyses: (A) Worst case scenario, (B) Best case scenario.

(A)



(B)



Appendix S7. Network meta-analysis estimates (lower triangle) and direct estimates (upper triangle) of complete lesion response for all therapies. Sensitivity analyses, worst-case scenario

	Surgery	Cidofovir	Ablative+Imi	Podotox cr	Podotox sol	PDT	CO2 Laser+5-FIPDT+CO2 laser	CO2 laser	Mycobac IL	Electro	Podotox gel	Ablative	TCA	Imi+Podotox cr	Imi	5-FU	KOH	Cryo	Polyph
Surgery																			
Cidofovir	0.54 [0.03; 9.57]																		
Ablative+Imi	1.69 [0.76; 3.77]	3.15 [0.18; 54.11]										1.36 [0.86; 2.16]			1.55 [0.98; 2.45]				
Podotox cr	1.77 [0.85; 3.69]	3.30 [0.19; 56.24]	1.05 [0.55; 1.99]		1.00 [0.51; 1.97]														
Podotox sol	1.94 [1.00; 3.76]	3.62 [0.21; 61.05]	1.15 [0.64; 2.04]	1.10 [0.71; 1.70]															
PDT	1.90 [0.78; 4.60]	3.54 [0.20; 62.60]	1.12 [0.54; 2.33]	1.07 [0.51; 2.27]	0.98 [0.49; 1.95]			1.16 [0.71; 1.89]											
CO2 Laser+5-F	2.02 [0.90; 4.50]	3.76 [0.22; 64.81]	1.19 [0.63; 2.27]	1.14 [0.60; 2.18]	1.04 [0.58; 1.86]	1.06 [0.56; 2.00]		1.34 [0.88; 2.05]								1.14 [0.72; 1.80]			
PDT+CO2 laser	1.97 [0.77; 5.06]	3.67 [0.20; 66.14]	1.16 [0.52; 2.60]	1.11 [0.49; 2.53]	1.02 [0.47; 2.18]	1.04 [0.48; 2.22]	0.98 [0.48; 2.00]		1.12 [0.62; 2.01]										
CO2 laser	2.20 [1.05; 4.60]	4.11 [0.24; 69.62]	1.30 [0.75; 2.25]	1.25 [0.71; 2.20]	1.14 [0.70; 1.85]	1.16 [0.71; 1.89]	1.09 [0.73; 1.64]	1.12 [0.62; 2.01]				1.00 [0.55; 1.83]				0.75 [0.46; 1.22]		2.40 [1.42; 4.06]	
Mycobac IL	2.19 [0.93; 5.11]	4.08 [0.23; 70.90]	1.29 [0.66; 2.53]	1.24 [0.61; 2.50]	1.13 [0.59; 2.15]	1.15 [0.51; 2.60]	1.08 [0.52; 2.24]	1.11 [0.46; 2.67]	0.99 [0.52; 1.91]						1.21 [0.73; 2.01]				
Electro	2.28 [1.10; 4.74]	4.26 [0.25; 72.98]	1.35 [0.72; 2.53]	1.29 [0.73; 2.29]	1.18 [0.73; 1.91]	1.20 [0.58; 2.48]	1.13 [0.61; 2.12]	1.16 [0.52; 2.57]	1.04 [0.61; 1.78]	1.04 [0.52; 2.08]								1.09 [0.70; 1.71]	
Podotox gel	2.25 [0.85; 5.96]	4.21 [0.24; 74.02]	1.33 [0.57; 3.10]	1.28 [0.56; 2.91]	1.16 [0.53; 2.56]	1.19 [0.47; 3.03]	1.12 [0.48; 2.63]	1.15 [0.42; 3.10]	1.02 [0.46; 2.28]	1.03 [0.43; 2.50]	0.99 [0.43; 2.28]								
Ablative	2.28 [1.05; 4.93]	4.26 [0.25; 72.51]	1.35 [0.87; 2.10]	1.29 [0.70; 2.37]	1.18 [0.69; 2.01]	1.20 [0.62; 2.33]	1.13 [0.64; 2.01]	1.16 [0.55; 2.43]	1.04 [0.66; 1.63]	1.04 [0.55; 1.99]	1.00 [0.56; 1.80]	1.01 [0.45; 2.29]				1.14 [0.71; 1.83]			
TCA	2.53 [1.30; 4.94]	4.73 [0.28; 79.81]	1.50 [0.86; 2.62]	1.43 [0.88; 2.35]	1.31 [0.89; 1.92]	1.33 [0.69; 2.60]	1.26 [0.72; 2.19]	1.29 [0.61; 2.71]	1.15 [0.73; 1.81]	1.16 [0.62; 2.17]	1.11 [0.70; 1.75]	1.12 [0.51; 2.47]	1.11 [0.67; 1.85]					1.08 [0.76; 1.56]	
Imi+Podotox cr	2.68 [1.18; 6.07]	5.01 [0.29; 87.35]	1.59 [0.79; 3.20]	1.52 [0.77; 2.98]	1.38 [0.76; 2.53]	1.41 [0.65; 3.09]	1.33 [0.66; 2.67]	1.36 [0.58; 3.19]	1.22 [0.66; 2.25]	1.23 [0.57; 2.62]	1.17 [0.63; 2.21]	1.19 [0.48; 2.92]	1.18 [0.61; 2.28]	1.06 [0.60; 1.86]				1.09 [0.67; 1.78]	
Imi	2.65 [1.34; 5.25]	4.95 [0.30; 82.24]	1.57 [1.01; 2.44]	1.50 [0.92; 2.44]	1.37 [0.92; 2.04]	1.40 [0.74; 2.64]	1.32 [0.78; 2.22]	1.35 [0.66; 2.76]	1.21 [0.80; 1.82]	1.21 [0.73; 2.01]	1.16 [0.73; 1.86]	1.18 [0.57; 2.43]	1.16 [0.78; 1.74]	1.05 [0.72; 1.52]	0.99 [0.56; 1.74]			1.04 [0.73; 1.49]	
5-FU	2.75 [1.32; 5.76]	5.14 [0.30; 86.80]	1.63 [0.91; 2.90]	1.56 [0.89; 2.74]	1.42 [0.87; 2.31]	1.45 [0.78; 2.69]	1.37 [0.90; 2.07]	1.40 [0.70; 2.81]	1.25 [0.86; 1.82]	1.26 [0.65; 2.44]	1.21 [0.70; 2.08]	1.22 [0.55; 2.69]	1.21 [0.72; 2.02]	1.09 [0.68; 1.73]	1.03 [0.55; 1.92]	1.04 [0.68; 1.58]		1.05 [0.59; 1.87]	
KOH	2.83 [1.29; 6.20]	5.28 [0.31; 90.85]	1.67 [0.87; 3.21]	1.60 [0.85; 3.01]	1.46 [0.84; 2.55]	1.49 [0.73; 3.04]	1.40 [0.79; 2.51]	1.44 [0.66; 3.15]	1.29 [0.77; 2.16]	1.29 [0.63; 2.65]	1.24 [0.68; 2.25]	1.26 [0.54; 2.94]	1.24 [0.68; 2.26]	1.12 [0.66; 1.89]	1.06 [0.54; 2.05]	1.07 [0.64; 1.77]	1.03 [0.65; 1.62]	1.06 [0.60; 1.90]	
Cryo	2.94 [1.52; 5.67]	5.48 [0.33; 91.73]	1.74 [1.05; 2.89]	1.66 [1.04; 2.66]	1.52 [1.06; 2.18]	1.55 [0.84; 2.86]	1.46 [0.88; 2.40]	1.49 [0.74; 3.00]	1.33 [0.92; 1.94]	1.34 [0.75; 2.41]	1.29 [0.86; 1.92]	1.30 [0.61; 2.77]	1.29 [0.82; 2.02]	1.16 [0.87; 1.54]	1.09 [0.67; 1.78]	1.11 [0.83; 1.48]	1.07 [0.72; 1.59]	1.04 [0.66; 1.63]	
Polyph	4.07 [1.88; 8.83]	7.60 [0.46; 125.86]	2.41 [1.32; 4.42]	2.31 [1.30; 4.11]	2.10 [1.24; 3.56]	2.15 [1.03; 4.46]	2.02 [1.08; 3.77]	2.07 [0.93; 4.62]	1.85 [1.07; 3.20]	1.86 [0.96; 3.62]	1.78 [0.98; 3.24]	1.81 [0.89; 3.68]	1.79 [1.01; 3.16]	1.61 [0.95; 2.72]	1.52 [0.77; 3.00]	1.54 [1.00; 2.36]	1.48 [0.87; 2.51]	1.44 [0.78; 2.67]	1.39 [0.86; 2.24]

Appendix S8. Probabilities of treatment ranking. Sensitivity analyses: (A) Worst case scenario, (B) Best case scenario.

(A)

	SUCRA
Surgery	0.949
Cidofovir	0.856
Ablative+Imi	0.802
Podotox cr	0.777
Podotox sol	0.727
PDT	0.712
CO2 Laser+5-FU	0.685
PDT+CO2 laser	0.677
CO2 laser	0.617
Mycobac IL	0.612
Electro	0.585
5-FU IL	0.583
Podotox gel	0.582
Ablative	0.581
Citric Ac 9%	0.566
TCA	0.492
Cryo+Podotox cr	0.450
Imi	0.440
5-FU	0.408
Podo	0.407
KOH	0.399
Cryo	0.339
Podo+TCA	0.338
IFN-2b IL	0.250
Polyph	0.190
Podotox sol+cr	0.150
Placebo IL	0.131
Placebo	0.105
IFN-1a IL	0.091

(B)

	SUCRA
Surgery	0.890
Electro	0.829
Ablative+Imi	0.787
PDT	0.693
Cidofovir	0.689
PDT+CO2 laser	0.668
Cryo+Podotox cr	0.663
CO2 Laser+5-FU	0.658
Podotox gel	0.647
5-FU IL	0.643
Ablative	0.633
Podotox sol	0.631
CO2 laser	0.616
Podotox cr	0.606
Mycobac IL	0.578
TCA	0.495
Podo+TCA	0.495
Imi	0.489
Cryo	0.457
5-FU	0.421
KOH	0.415
IFN-2b IL	0.330
Podo	0.329
Citric Ac 9%	0.211
Placebo IL	0.167
Podotox sol+cr	0.148
Polyph	0.127
IFN-1a IL	0.122
Placebo	0.062

REFERENCES:

1. Abdullah AN, Walzman M, Wade A. Treatment of external genital warts comparing cryotherapy (liquid nitrogen) and trichloroacetic acid. *Sex Transm Dis* 1993; **20**:344-5
2. Akhavan S, Mohammadi SR, Modarres Gillani M, et al. Efficacy of combination therapy of oral zinc sulfate with imiquimod, podophyllin or cryotherapy in the treatment of vulvar warts. *J Obstet Gynaecol Res* 2014; **40**:2110-3
3. Arican O, Guneri F, Bilgic K, et al. Topical imiquimod 5% cream in external anogenital warts: a randomized, double-blind, placebo-controlled study. *J Dermatol* 2004; **31**:627-31
4. Azizjalali M, Ghaffarpour G, Mousavifard B. CO₂ laser therapy versus cryotherapy in treatment of genital warts; a randomized controlled trial (RCT). *Iran J Microbiol* 2012; **4**:187-90
5. Baker DA, Ferris DG, Martens MG, et al. Imiquimod 3.75% cream applied daily to treat anogenital warts: combined results from women in two randomized, placebo-controlled studies. *Infect Dis Obstet Gynecol* 2011:806105
6. Benedetti Panici P, Scambia G, Baiocchi G, et al. Randomized clinical trial comparing systemic interferon with diathermocoagulation in primary multiple and widespread anogenital condyloma. *Obstet Gynecol* 1989; **74**:393-7
7. Beutner KR, Conant MA, Friedman-Kien AE, et al. Patient-applied podofilox for treatment of genital warts. *Lancet* 1989; **1**:831-4
8. Beutner KR, Tyring SK, Trofatter KF, et al. Imiquimod, a patient-applied immune-response modifier for treatment of external genital warts. *Antimicrob Agents Chemother* 1998; **42**:789-94
9. Bilensoy EA , Moroy PB, Çirpanli YA, et al. A double-blind placebo-controlled study of 5-fluorouracil: cyclodextrin complex loaded thermosensitive gel for the treatment of HPV induced condyloma. *J Incl Phenom Macrocycl Chem* 2011; **69**:309–13
10. Bornstein J, Pascal B, Zarfati D, et al. Recombinant human interferon-beta for condylomata acuminata: a randomized, double-blind, placebo-controlled study of intralesional therapy. *Int J STD AIDS* 1997; **8**:614-21
11. Camargo CLdA, Belda WJr, Fagundes LJ, et al. A prospective, open, comparative study of 5% potassium hydroxide solution versus cryotherapy in the treatment of genital warts in

- men. *An Bras Dermatol* 2014; **89**:236-41
12. Carpiniello VL, Malloy TR, Sedlacek TV, et al. Results of carbon dioxide laser therapy and topical 5-fluorouracil treatment for subclinical condyloma found by magnified penile surface scanning. *J Urol* 1988; **140**:53-4
 13. Chen K, Chang BZ, Ju M, et al. Comparative study of photodynamic therapy vs CO₂ laser vaporization in treatment of condylomata acuminata: a randomized clinical trial. *Br J Dermatol* 2007; **156**:516-20
 14. Claesson U, Lassus A, Happonen H, et al. Topical treatment of venereal warts: a comparative open study of podophyllotoxin cream versus solution. *Int J STD AIDS* 1996; **7**:429-34
 15. Duus BR, Philipsen T, Christensen JD, et al. Refractory condylomata acuminata: a controlled clinical trial of carbon dioxide laser versus conventional surgical treatment. *Genitourin Med* 1985; **61**:59-61
 16. Edwards A, Atma-Ram A, Thin RN. Podophyllotoxin 0.5% v podophyllin 20% to treat penile warts. *Genitourin Med* 1988; **64**:263-5
 17. Edwards L, Ferenczy A, Eron L, et al. Self-administered topical 5% imiquimod cream for external anogenital warts. HPV Study Group. Human PapillomaVirus. *Arch Dermatol* 1998; **134**:25-30
 18. Eron LJ, Alder MB, O'Rourke JM, et al. Recurrence of condylomata acuminata following cryotherapy is not prevented by systemically administered interferon. *Genitourin Med* 1993; **69**:91-3
 19. Gabriel G, Thin RN. Treatment of anogenital warts. Comparison of trichloroacetic acid and podophyllin versus podophyllin alone. *Br J Vener Dis* 1983; **59**:124-6
 20. Gilson RJC, Ross J, Maw R, et al. A multicentre, randomised, double-blind, placebo controlled study of cryotherapy versus cryotherapy and podophyllotoxin cream as treatment for external anogenital warts. *Sex Transm Infect* 2009; **85**:514-9
 21. Godley MJ, Bradbeer CS, Gellan M, et al. Cryotherapy compared with trichloroacetic acid in treating genital warts. *Genitourin Med* 1987; **63**:390-2
 22. Greenberg MD, Rutledge LH, Reid R, et al. A double-blind, randomized trial of 0.5% podofilox and placebo for the treatment of genital warts in women. *Obstet Gynecol* 1991;

77:735-9

23. Gross G, Meyer KG, Pres H, et al. A randomized, double-blind, four-arm parallel-group, placebo-controlled phase II/III study to investigate the clinical efficacy of two galenic formulations of polyphenon E in the treatment of external genital warts. *J Eur Acad Dermatol Venereol* 2007; **21**:1404-2
24. Hellberg D, Svarrer T, Nilsson S, et al. Self-treatment of female external genital warts with 0.5% podophyllotoxin cream (Condyline) vs weekly applications of 20% podophyllin solution. *Int J STD AIDS* 1995; **6**:257-61
25. Işık S, Koca R, Sarici G, et al. A comparison of a 5% potassium hydroxide solution with a 5-fluorouracil and salicylic acid combination in the treatment of patients with anogenital warts: a randomized, open-label clinical trial. *Int J Dermatol* 2014; **53**:1145-50
26. Jensen SL. Comparison of podophyllin application with simple surgical excision in clearance and recurrence of perianal condylomata acuminata. *Lancet* 1985; **2**:1146-8
27. Keay S, Teng N, Eisenberg M, et al. Topical interferon for treating condyloma acuminata in women. *J Infect Dis* 1988; **158**:934-9
28. Khawaja HT. Podophyllin versus scissor excision in the treatment of perianal condylomata acuminata: a prospective study. *Br J Surg* 1989; **76**:1067-8
29. Kinghorn GR, McMillan A, Mulcahy F, et al. An open, comparative, study of the efficacy of 0.5% podophyllotoxin lotion and 25% podophyllotoxin solution in the treatment of condylomata acuminata in males and females. *Int J STD AIDS* 1993; **4**:194-9
30. Kirby P, Dunne A, King DH, et al. Double-blind randomized clinical trial of self-administered podofilox solution versus vehicle in the treatment of genital warts. *Am J Med* 1990; **88**:465-9
31. Komericki P, Akkilic-Materna M, Strimitzer T, et al. Efficacy and safety of imiquimod versus podophyllotoxin in the treatment of anogenital warts. *Sex Transm Dis* 2011; **38**:216-8
32. Kumar P, Dar L, Saldiwal S, et al. Intralesional injection of *Mycobacterium w* vaccine vs imiquimod, 5%, cream in patients with anogenital warts: a randomized clinical trial. *JAMA Dermatol* 2014; **150**:1072-8
33. Lacey CJN, Goodall RL, Tennvall GR, et al. Randomised controlled trial and economic

- evaluation of podophyllotoxin solution, podophyllotoxin cream, and podophyllin in the treatment of genital warts. *Sex Transm Infect* 2003; **79**:270-5
34. Lassus A. Comparison of podophyllotoxin and podophyllin in treatment of genital warts. *Lancet Lond Engl* 1987; **2**:512-3
 35. Lotfabadi P, Maleki F, Gholami A, et al. Liquid nitrogen cryotherapy versus 70% trichloroacetic acid in the treatment of anogenital warts: a randomized controlled trial. *Iran J Dermatol* 2015; **18**:151-5
 36. Mahajan BBa, Tilak Raj Rb, Kumar R. A comparative evaluation of therapeutic efficacy and safety of the cryotherapy (liquid nitrogen) with topical 20% podophyllin v/s intralesional bleomycin with topical 5% placentrex gel in the treatment of condyloma acuminata. *Asian J Pharm Clin Res* 2014; **7**:36-42
 37. Mazurkiewicz W, Jabłońska S. Clinical efficacy of condyline (0.5% podophyllotoxin) solution and cream versus podophyllin in the treatment of external condylomata acuminata. *J Dermatol Treat* 1990; **1**:123-5
 38. Nath D, Kumar B, Sharma V.K, et al. Comparison of podophyllin and trichloroacetic acid for the treatment of genital warts. *Indian J Dermatol Venereol Leprol* 1990; **56**:22-4
 39. On SCJa, Linkner RVa, Haddican Ma, et al. A single-blinded randomized controlled study to assess the efficacy of twice daily application of sinecatechins 15% ointment when used sequentially with cryotherapy in the treatment of external genital warts. *J Drugs Dermatol* 2014; **13**:1400-5
 40. Ormerod AD, van Voorst Vader PC, Majewski S, et al. Evaluation of the efficacy, safety, and tolerability of 3 dose regimens of topical sodium nitrite with citric acid in patients with anogenital warts: a randomized clinical trial. *JAMA Dermatol* 2015; **151**:854-61
 41. Padhiar BB, Karia UK, Aggarwal R, et al. A comparative study of efficacy of imiquimod 5% versus podophyllin 20% in treatment of external and genital warts (60 patients). *Indian Journal Of Sexually Transmitted Diseases. Indian J Sex Transm Dis* 2006; **27**:671-9
 42. Petersen CS, Agner T, Ottevanger V, et al. A single-blind study of podophyllotoxin cream 0.5% and podophyllotoxin solution 0.5% in male patients with genital warts. *Genitourin Med* 1995; **71**:391-2
 43. Reichman RC, Oakes D, Bonnez W, et al. Treatment of condyloma acuminatum with three

different interferons administered intralesionally. A double-blind, placebo-controlled trial. *Ann Intern Med* 1988; **108**:675-79

44. Relakis K, Cardamakis E, Korantzis A, et al. Treatment of men with flat (FC) or acuminata (CA) condylomata with interferon alpha-2a. *Eur J Gynaecol Oncol* 1996; **17**:529-33
45. Schöfer HA, V/van Ophoven AB, Henke UA, et al. Randomized, comparative trial on the sustained efficacy of topical imiquimod 5% cream versus conventional ablative methods in external anogenital warts. *Eur J Dermatol* 2006; **16**:642-8
46. Sherrard J, Riddell L. Comparison of the effectiveness of commonly used clinic-based treatments for external genital warts. *Int J STD AIDS* 2007; **18**:365-8
47. Simmons PD, Langlet F, Thin RN. Cryotherapy versus electrocautery in the treatment of genital warts. *Br J Vener Dis* 1981; **57**:273-4
48. Snoeck R, Bossens M, Parent D, et al. Phase II double-blind, placebo-controlled study of the safety and efficacy of cidofovir topical gel for the treatment of patients with human papillomavirus infection. *Clin Infect Dis* 2001; **33**:597-602
49. Stockfleth E, Beti H, Orasan R, et al. Topical polyphenon® E in the treatment of external genital and perianal warts: a randomized controlled trial. *Br J Dermatol* 2008; **158**:1329-38
50. Stefanaki C, Katzouranis I, Lagogianni E, et al. Comparison of cryotherapy to imiquimod 5% in the treatment of anogenital warts. *Int J STD AIDS* 2008; **19**:441-4
51. Stone KM, Becker TM, Hadgu A, et al. Treatment of external genital warts: a randomised clinical trial comparing podophyllin, cryotherapy, and electrodesiccation. *Genitourin Med* 1990; **66**:16-9
52. Strand A, Brinkeborn RM, Siboulet A. Topical treatment of genital warts in men, an open study of podophyllotoxin cream compared with solution. *Genitourin Med* 1995; **71**:387-90
53. Swinehart JM, Sperling M, Philips S, et al. Intralesional fluorouracil/epinephrine injectable Gel for treatment of condylomata acuminata. *Arch Dermatol* 1997; **133**:67-73
54. Syed TA, Ahmadpour OA, Ahmad SA, et al. Management of female genital warts with an analog of imiquimod 2% in cream: a randomized, double-blind, placebo-controlled study. *J Dermatol* 1998; **25**:429-33
55. Syed TA, Cheema KM, Khayyami M, et al. Human leukocyte interferon-alpha versus podophyllotoxin in cream for the treatment of genital warts in males. A placebo-controlled,

- double-blind, comparative study. *Dermatol Basel Switz* 1995; **191**:129-32
56. Syed TA, Khayyami M, Kriz D, et al. Management of genital warts in women with human leukocyte interferon-alpha vs. podophyllotoxin in cream: a placebo-controlled, double-blind, comparative study. *J Mol Med Berl Ger* 1995; **73**:255-8
 57. Syed TA, Lundin S, Ahmad SA. Topical 0.3% and 0.5% podophyllotoxin cream for self-treatment of condylomata acuminata in women. A placebo-controlled, double-blind study. *Dermatol Basel Switz* 1994; **189**:142-5
 58. Syed TA, Hadi SM, Qureshi ZA, et al. Treatment of external genital warts in men with imiquimod 2% in cream. A placebo-controlled, double-blind study. *J Infect* 2000; **41**:148-51
 59. Szeimies RM, Schleyer V, Moll I, et al. Adjuvant photodynamic therapy does not prevent recurrence of condylomata acuminata after carbon dioxide laser ablation-a phase III, prospective, randomized, bicentric, double-blind study. *Dermatol Surg* 2009; **35**:757-64
 60. Tabari S, Javadian M, Barat S. The efficacy of podophyllin 20% and trichloroacetic acid %30 in the treatment of genital wart. *Casp J Intern Med* 2010; **1**:16-9
 61. Tatti S, Swinehart JM, Thielert C, et al. Sinecatechins, a defined green tea extract, in the treatment of external anogenital warts: a randomized controlled trial. *Obstet Gynecol* 2008; **111**:1371-9
 62. Tyring SK, Arany I, Stanley MA, et al. A randomized, controlled, molecular study of condylomata acuminata clearance during treatment with imiquimod. *J Infect Dis* 1998; **178**:551-5
 63. Tyring S, Edwards L, Cherry LK, et al. Safety and efficacy of 0.5% podofilox gel in the treatment of anogenital warts. *Arch Dermatol* 1998; **134**:33-8
 64. Vance JC, Bart BJ, Hansen RC, et al. Intralesional recombinant alpha-2 interferon for the treatment of patients with condyloma acuminatum or verruca plantaris. *Arch Dermatol* 1986; **122**:272-7
 65. von Krogh G, Hellberg D. Self-treatment using a 0.5% podophyllotoxin cream of external genital condylomata acuminata in women. A placebo-controlled, double-blind study. *Sex Transm Dis* 1992; **19**:170-4
 66. von Krogh G, Szpak E, Andersson M, et al. Self-treatment using 0.25%-0.50%

- podophyllotoxin-ethanol solutions against penile condylomata acuminata: a placebo-controlled comparative study. *Genitourin Med* 1994; **70**:105-9
67. Wallin J. 5-Fluorouracil in the treatment of penile and urethral condylomata acuminata. *Br J Vener Dis* 1977; **53**:240-3
68. Weismann K, Kassis V. Treatment of condyloma acuminatum with 0.5% 5-fluorouracil-solution, a double-blind clinical trial. *Z Für Hautkrankh* 1982; **57**:810-6
69. Welandar CE, Homesley HD, Smiles KA, et al. Intralesional interferon alfa-2b for the treatment of genital warts. *Am J Obstet Gynecol* 1990; **162**:348-54
70. White DJ, Billingham C, Chapman S, et al. Podophyllin 0.5% or 2.0% v podophyllotoxin 0.5% for the self treatment of penile warts: a double blind randomised study. *Genitourin Med* 1997; **73**:184-7
71. Alfonso-Trujillo I, Labrada MA, Rojas ARG, et al. Condyloma acuminata: comparative therapeutic efficacy between podophyllin vs. Cryotherapy. *Dermatol Perú* 2008; **18**:27-34
72. Alfonso-Trujillo I, Labrada MA, Rojas ARG, et al. Radiosurgery and the cryosurgery in the treatment of the anal condyloma acuminata. *Dermatol Perú* 2008; **18**:98-105
73. Alfonso-Trujillo I, Labrada MA, Rojas ARG, et al. Condyloma acuminata: Comparison of the therapeutic efficacy of topical 5-fluorouracil and cryosurgery. *Semergen* 2009; **35**:484-8
74. Alfonso-Trujillo I, Acosta D, Alvarez M, et al. Condyloma acuminata: comparative therapeutic efficacy between trichloroacetic acid vs. trichloroacetic acid associated to levamisole. *Dermatol Perú* 2009; **19**:114-21
75. Arany I, Tyring SK, Stanley MA, et al. Enhancement of the innate and cellular immune response in patients with genital warts treated with topical imiquimod cream 5%. *Antiviral Res* 1999; **43**:55-63
76. Armstrong DKB, Maw RD, Dinsmore WW, et al. Combined therapy trial with interferon alpha-2a and ablative therapy in the treatment of anogenital warts. *Genitourin Med* 1996; **72**:103-7
77. Bar-Am A, Lessing JB, Niv J, et al. High- and low-power CO2 lasers. Comparison of results for three clinical indications. *J Reprod Med* 1993; **38**:455-8
78. Bashi SA. Cryotherapy versus podophyllin in the treatment of genital warts. *Int J Dermatol*

1985; **24**:535-6

79. Beutner KR, Spruance SL, Hougham AJ, et al. Treatment of genital warts with an immune-response modifier (imiquimod). *J Am Acad Dermatol* 1998; **38**:230-9
80. Beutner KR, Edwards L, Owens ML, et al. Comparison of two vehicle-controlled trials of imiquimod 5% cream for the treatment of external genital warts. Poster presented at: 35th european society for dermatological research; 1998 May 7-10; Cologne.
81. Botacini G. Therapeutic of cervicovaginal human papillomavirus infection. Randomized study with four drugs. *J Bras Ginecol* 1993; **103**:205–10
82. Buck HW, Fortier M, Knudsen J, et al. Imiquimod 5% cream in the treatment of anogenital warts in female patients. *Int J Gynaecol Obstet* 2002; **77**:231-8
83. Chen HC, Fang H, Wang YN, et al. Photodynamic therapy with aminolevulinic acid (ALA-PDT) for urethral condyloma acuminatum: a clinical observation. *J Clin Dermatol* 2009; **38**:193-4
84. Chopra K, Lee P, Tyring SK, et al. Vehicle-controlled study investigating the mechanism of action of 5% imiquimod cream applied three times a week for the treatment of patients with genital/perianal warts. Abstract presented at: 19th world congress of dermatology; 1997 Jun 15-20; Sydney. *Australas J Dermatol* 1997; **38**:113–4
85. The Condyloma International Collaborative Study Group. A comparison of interferon alfa-2a and podophyllin in the treatment of primary condylomata acuminata. *Genitourin Med* 1991; **67**:394-9
86. The Condyloma International Collaborative Study Group. Randomized placebo-controlled double-blind combined therapy with laser surgery and systemic interferon-alpha 2a in the treatment of anogenital condylomata acuminatum. *J Infect Dis* 1993; **167**:824-9
87. Damstra RJ and Vloten WA. Treatment of condylomata acuminata: a controlled study of 64 patients. *J Dermatol Surg Oncol* 1991; **17**:273-6
88. Davidson-Parker J, Dinsmore W, Khan MH, et al. Immunotherapy of genital warts with inosine pranobex and conventional treatment: double blind placebo controlled study. *Genitourin Med* 1988; **64**:383-6
89. Dinsmore W, Jordan J, O'Mahony C, et al. Recombinant human interferon-beta in the treatment of condylomata acuminata. *Int J STD AIDS* 1997; **8**:622-8

90. Douglas JM, Eron LJ, Judson FN, et al. A randomized trial of combination therapy with intralesional interferon alpha 2b and podophyllin versus podophyllin alone for the therapy of anogenital warts. *J Infect Dis* 1990; **162**:52-9
91. Edwards L. Imiquimod in clinical practice. *Australas J Dermatol* 1998; **39**:14-6
92. Edwards L, Ferenczy A, Eron L, et al. Multi-center safety and efficacy trial evaluating three times per week application of 1% and 5% topical imiquimod for the treatment of genital/perianal warts. *Antiviral Research* 1995; **26**:A244
93. Eron LJ, Alder MB, O'Rourke JM, et al. Recurrence of condylomata acuminata following cryotherapy is not prevented by systemically administered interferon. *Genitourin Med* 1993; **69**:91-3
94. Ferenczy A. Immune response modifiers: Imiquimod. *J Obstet Gynaecol* 1998; **18**:S76-8
95. Ferenczy A, Behelak Y, Haber G, et al. Treating vaginal and external anogenital condylomas with electrosurgery vs CO2 laser ablation. *J Gynecol Surg* 1995; **11**:41-50
96. Fife KH, Ferenczy A, Douglas JM, et al. Treatment of external genital warts in men using 5% imiquimod cream applied three times a week, once daily, twice daily, or three time a day. *Sex Transm Dis* 2001; **28**:226-31
97. Fleshner PR and Freilich MI. Adjuvant interferon for anal condyloma. A prospective, randomized trial. *Dis Colon Rectum* 1994; **37**:1255-9
98. Fouere S, Dupin N, Halioua B, et al. Etude de phase II de tolerance, de pharmacocinétique et d'efficacité d'AP611074, antiviral spécifique de PVH6 et 11 dans le traitement topique des condylomes anogénitaux. *Ann Dermatol Venereol* 2014; **141**:S303-4.
99. Garland SM, Waddel R, Mindel A, et al. An open-label phase II pilot study investigating the optimal duration of imiquimod 5% cream for the treatment of external genital warts in women. *Int J STD AIDS* 2006; **17**:448-452
100. Garland SM, Sellors JW, Wikstrom A, et al. Imiquimod 5% cream is a safe and effective self-applied treatment for anogenital warts-results of an open-label, multicentre phase IIIB trial. *Int J STD AIDS* 2001; **12**:722-9
101. Goh CL, Ang CB, Chan RKW, et al. Comparing treatment response and complications between podophyllin 0.5%/0.25% in ethanol vs podophyllin 25% in tincture Benzoin for

- penile warts. *Singapore Med J* 1998; **39**:17-9
102. Gollnick H, Barasso R, Jappe U, et al. Safety and efficacy of imiquimod 5% cream in the treatment of penile genital warts in circumcised men when applied three times weekly or once per day. *Int J of STD AIDS* 2001; **12**:22-8
 103. Gross G, Roussaki A, Baur S, et al. Systemically administered interferon alfa-2a prevents recurrence of condylomata acuminata following CO₂-laser ablation. The influence of the cyclic low dose therapy regimen. Results of multicentre double-blind placebo-controlled clinical trial. *Genitourin Med* 1996; **72**:71
 104. Gross G, Rogozinski T, Schöfer H, et al. Recombinant interferon beta gel as an adjuvant in the treatment of recurrent genital warts: results of a placebo-controlled double-blind study in 120 patients. *Dermatology* 1998; **196**:330-4
 105. Handley JM, Horner T, Maw RD, et al. Subcutaneous interferon alpha 2a combined with cryotherapy vs cryotherapy alone in the treatment of primary anogenital warts: a randomized observer blind placebo controlled study. *Genitourin Med* 1991; **67**:297-302
 106. Handley JM, Maw RD, Horner T, et al. A placebo controlled observer blind immunocytochemical and histologic study of epithelium adjacent to anogenital warts in patients treated with systemic interferon alpha in combination with cryotherapy or cryotherapy alone. *Genitourin Med* 1992; **68**:100-5
 107. Hohenleutner U, Landthaler M, Braun-Falco O. Postoperative adjuvant therapy with interferon alfa-2B following laser surgery of condylomata acuminata. *Hautarzt* 1990; **41**:545-8
 108. Hoy SM. Polyphenon E 10% Ointment in immunocompetent adults with external genital and perianal warts. *Am J Clin Dermatol* 2012; **13**:275-281
 109. IRCT2017011531949N1. Comparing the effects of Shallomin and Podophyllin solution 25% in treatment of genital HPV warts in women
 110. IRCT2015090514386N1. Comparison of the effectiveness of two common treatments for genital warts
 111. IRCT2013111015364N1. Comparative effect treatment of ficus carica latex cream vs. podophyllin in treatment of genital warts
 112. IRC 201202138992N1. Comparison of the efficacy of garlic extracts 10% and cryotherapy

(liquid nitrogen) in the treatment of the genital warts in men

113. IRCT201412207848N1 Asadi N, Hemmati E, Namazi G, et al. A comparative study of potassium hydroxide versus CO₂ laser vaporization in the treatment of female genital warts: a controlled clinical trial. *Int J Community Based Nurs Midwifery* 2016; **4**:274-82
114. Jardine D, Lu J, Pang J, et al. A randomized trial of immunotherapy for persistent genital warts. *Human Vaccin Immunother* 2012; **8**:623-9
115. Klutke JJ and Bergman A. Interferon as an adjuvant treatment for genital condyloma acuminatum. *Int J Gynecol Obst* 1995; **49**:171-4
116. Lafuma A, Monsonogo J, Moyal-Barracco M, et al. A model-based comparison of cost effectiveness of imiquimod versus podophyllotoxin for the treatment of external anogenital warts in France. *Ann Dermatol Venereol* 2003. **130**:731-6
117. Landthaler M, Frosschl M. Zur behandlung von condylomata acuminata mit podophyllotoxin. *Dt Dermatol* 1987; **11**:1223-5
118. Langley PC. A cost-effectiveness analysis of sinecatechins in the treatment of external genital warts. *J Med Econ* 2010; **13**:1-7
119. Lassus A, Haukka K, Forsstrom S. Podophyllotoxin for treatment of genital warts in males. A comparison with conventional podophyllin therapy. *Eur J Sex Transm Dis* 1984; **2**:31-3
120. Li J, Yi Y, Zhu W. Three stages of 5-aminolevulinic acid-photodynamic therapy for condyloma acuminatum of external urethral meatus. *Zhong Nan Xue Xue Bao Yi Xue Ban* 2011; **36**:1115-9
121. Liang J, Lu XN, Tang H, et al. Evaluation of photodynamic therapy using topical aminolevulinic acid hydrochloride in the treatment of condylomata acuminata: a comparative, randomized clinical trial. *Photodermatol Photoimmunol Photomed* 2009; **25**:293-7
122. Liu H, Zhang P, An X, et al. CO₂ laser plus photodynamic therapy versus CO₂ laser in the treatment of condyloma acuminatum: a randomized comparative study. *J of Innov Opt Heal Sci* 2012; **7**:1150008-1-7
123. Maiti H, Haye KR. Self-treatment of condylomata acuminata with podophyllin resin. *Practitioner* 1985; **229**:37-9
124. Maw RD, Kinghorn GR, Bowman CA, et al. Imiquimod 5% cream is an acceptable

- treatment option for external anogenital warts in uncircumcised males. *J Eur Acad Dermatol Venereol* 2002; **16**:58-62
125. Mazurkiewicz W and Jablonska S. Clinical efficacy of condylone (0,5% podophyllotoxin) solution and cream versus podophyllin in the treatment of external condylomata acuminata. *J of Dermatol Treatment* 1990; **1**:123-5
 126. Meltzer SM, Bradley JM, Tewari KS. Green tea catechins for treatment of external genital warts. *Am J Obstet Gynecol* 2009; **200**:233.e1-e7.
 127. Metewea B, El-Nashar AR, Kamel I, et al. Application of viable bacilli calmette-guerin topically as a potential therapeutic modality in condylomata acuminata: a placebo-controlled study. *Urology* 2005; **65**:247-50
 128. Mi X, Chai W, Zheng H, et al. A randomized clinical comparative study of cryotherapy plus photodynamic therapy vs. cryotherapy in the treatment of multiples condylomata acuminata. *Photodermatol Photoimmunol Photomed* 2011; **27**:176-80.
 129. Mistrangelo M, Cornaglia S, Pizzio M et al. Immunostimulation to reduce recurrence after surgery for anal condyloma acuminata: a prospective randomized controlled trial. *Colorectal Dis* 2010; **12**:799-03
 130. Monsonego J, Cessot G, Ince SE, et al. Randomized double-blind trial of recombinant interferon-beta for condyloma acuminatum. *Genitourin Med* 1996; **72**:111-4
 131. NCT00674739. Safety and effectiveness study of imiquimod creams in the treatment of external genital warts
 132. NCT00735462. Phase 3 Study of imiquimod creams in the treatment of external genital warts
 133. NCT02520986. Carbon dioxide laser vs. electrocoagulation for the therapy of condyloma
 134. NCT02724254. A study to assess the safety, tolerability, pharmacokinetics and efficacy of twice daily topical applications of AP611074 5% Gel for up to 16 Weeks in condyloma patients
 135. NCT01796821. Efficacy and safety profiles of SR-T100 gel on external genital warts/condyloma acuminata(EGWs)
 136. NCT03153566. Comparison between tuberculin vaccine and cryotherapy in genital wart patients

137. NCT01943630. Safety and efficacy double blind vehicle controlled study of 15% AS101 gel to treat external genital warts
138. NCT02849262. Pharmacodynamics, safety and efficacy of topical omiganan in patients with external genital warts
139. NCT02462187. Topical NVN1000 for the treatment of external genital and perianal warts
140. NCT02482428. Efficacy and tolerability of topical LFX453 for external genital warts
141. NCT02147353. Treatment of external genital warts with cryotherapy and sinecatechins 15% ointment
142. NCT02015260. A trial of the efficacy and safety of topical nitric oxide in patients with anogenital warts
143. Nieminen P, Aho M, Lehtinen M, et al. Treatment of genital HPV infection with carbon dioxide laser and systemic interferon alpha-2b. *Sex Transm Dis* 1994; **21**:65-9
144. Owens ML, Edwards L, Ferenczy A, et al. Imiquimod 5% cream is effective and safe in the treatment of genital/ perianal warts. Abstract presented at 8th Congress of the European Academy of Dermatology and Venereology. 1999 Sept Oct 29-3; Amsterdam. *J Eur Acad Dermatol Venereol* 1999; **12**:S348
145. Potocnik M, Bartenjev I. Genital warts treatment – ultrapulse CO₂ or argon laser. *Australas J Dermatol* 1997; **38**:30-1
146. Rosen T, Nelson A, Ault K. Imiquimod Cream 2.5% and 3.75% applied once daily to treat external genital warts in men. *Cutis* 2015; **96**:277-82
147. Sauder DN, Skinner RB, Fox TL, et al. Topical imiquimod 5% cream as an effective treatment for external genital warts in different patient populations. *Sex Transm Dis* 2003; **30**:124-8
148. Sharma N, Sharma S, Singhal C. A comparative study of liquid nitrogen cryotherapy as monotherapy versus in combination with podophyllin in the treatment of condyloma acuminata. *J Clin Diagn Res* 2017; **11**:WC01-WC05
149. Shi H, Zhang X, Ma C, et al. Clinical analysis of five methods used to treat condylomata acuminata. *Dermatology* 2013; **227**:338-45
150. Stefanaki C, Fasoulaki X, Kouris A, et al. A randomized trial of efficacy of beta-sitosterol and its glucoside as adjuvant to cryotherapy in the treatment of anogenital warts. *J*

Dermatolog Treat 2015; **26**:139-42

151. Stellato G, Paavonen J, Nieminen P, et al. Diagnostic phase antibody response to the human papillomavirus type 16 E2 protein is associated with successful treatment of genital HPV lesions with systemic interferon α -2b. *Clin Diagn Virol* 1997; **7**:167-72
152. Swinehart JM, Skinner RB, McCarty JM, et al. Development of intralesional therapy with fluorouracil/adrenaline injectable gel for management of condylomata acuminata: two phase II clinical studies. *Genitourin Med* 1997; **73**:481-7
153. Syed TA. Imiquimod 5% versus podophyllotoxin 0.5% in cream for the treatment of genital warts. A placebo-controlled, double-blind, comparative study. Abstract. *Ann Dermatol Venereol* 2002;IC1612
154. Syed TA, Lundin S, Cheema KM, et al. Human leukocyte interferon- α in cream, for the treatment of genital warts in asian women: a placebo-controlled, double-blind study. *Clin Investig* 1994; **72**:870-3
155. Syed TA and Lundin S. Topical treatment of penile condylomata acuminata with podophyllotoxin 0.3% solution, 0.3% cream and 0.15% cream: a comparative open study. *Dermatology*. 1993; **187**:30-3
156. Trofatter KF, Ferenczy A, Fife KH, HPV Study Group. Increased frequency of dosing imiquimod 5% cream in the treatment of external genital warts in women. *Int J Gynaecol Obstet* 2002; **76**:2191-3
157. Tuncel A, Erbagci Z, Ozgoztas AO. An open-label comparative study to evaluate the efficacy and tolerability of imiquimod 5% cream alone and combined with cryotherapy in the treatment of recalcitrant anogenital warts. Abstract presented at: 14th congress of the european academy of dermatology and venereology; 2005 Oct 12-15; London. *J Eur Acad Dermatol Venereol* 2005; **19**:361
158. Urban G, Stentella P, Baiocco E, et al. Post-partum recurrency rate for clinical manifestation of human papillomavirus in the ano-genital tract after second trimester laser CO2 treatment: a randomized trial. Abstract presented at society for maternal fetal medicine. 2006. *Am J Obstet Gynaecol*.S194
159. Vesterinen E, Meyer B, Purola E, et al. Treatment of vaginal flat condyloma with interferon cream. *Lancet* 1984; **323**:157

160. Viazis N, Vlachogiannakos J, Vasiliadis K, et al. Earlier eradication of intra-anal warts with argon plasma coagulator combined with imiquimod cream compared with argon plasma laser alone: a prospective, randomized trial. *Dis Colon Rectum* 2007; **50**:2173–2179
161. Von Krogh G. Podophyllotoxin for condylomata acuminata eradication. Clinical and experimental comparative studies on podophyllum lignans, colchicine and 5-fluorouracil. *Acta Derm Venereol Suppl* 1981; **98**:1-48
162. Xu PH, Yuan DF, Wu ZZ, et al. Photodynamic therapy reducing recurrence of condyloma acuminatum: a clinical study. *J Clin Dermatol* 2009; **38**:334-35
163. Yaghoobi R, Jalal-Lofti S, Pazyar N, et al. Comparison of efficacy of 5% potassium hydroxide solution versus cryotherapy in the treatment of male genital wart: a randomized clinical trial. *G Ital Dermatol Venereol* 2014; **149**:149-50
164. Yin G, Yu J, Li D. Immune modulatory and therapeutic effect of lentinan on condyloma acuminatum. *Zhongguo Zhong Xi Yi Jie He Za Zhi* 1998; **18**:665-7
165. Yu X, Ye Z, Yang W, et al. Efficacy of local injection of bacillus calmette-guerin polysaccharide nucleic acid following CO2 laser resection on condyloma acuminatum. *Zhonghua Nan Ke Xue*. 2004; **10**:117-21
166. Zarcone R, carfora E, Bellini P, et al. Drug therapy of condylomata acuminata. *Minerva Ginecol* 1996; **48**:299-302
167. Zervoudis S, Iatrakis G, Peitsidis P, et al. Complementary treatment with oral pidotimod plus vitamin C after laser vaporization for female genital warts: a prospective study. *J Med Life* 2010; **3**:286-8