H.9 Dithranol, coal tar and vitamin D analogues combined with UVB

H.9.1 Calcipotriol + NB-UVB versus Calcipotriol

<table>
<tr><th>Reference</th><th>Study type</th><th>Number of patients</th><th>Patient characteristics</th><th>Intervention</th><th>Comparison</th><th>Length of follow-up</th><th>Outcome measures</th><th>Source of funding</th></tr>
<tr>
<td>A.V. Roussaki-Schulze, C. Kouskoukis, E. Klimi, E. Zafirou, A. Galanous, E. Rallis. Calcipotriol monotherapy versus calcipotriol plus UVA1 versus calcipotriol plus narrow-band UVB in the treatment of psoriasis. Drugs Exptl.</td>
<td>RCT
Single centre,
Greece

Randomised:
Method not stated

Allocation concealment:
Not mentioned

Blinding:</td>
<td>Total N = 45

Pts randomised to three groups: A, B &C. Group B not relevant (UVA+calcipotriol)</td>
<td>Inclusion criteria:
Patients with plaque psoriasis

Exclusion criteria:
Pregnant women, history of skin cancer

Baseline characteristics of randomised patients:
<table>
<tr><th></th><th>Calcipotriol</th><th>Calcipotriol + NB-UVB</th></tr>
<tr><td>M/F</td><td>12/3</td><td>12/3</td></tr>
</table>
</td>
<td>Group A

N=15

Calcipotriol ointment (Dovonex; 50 µg/g, b.d.)</td>
<td>Group C

N=15

Calcipotriol ointment (Dovonex 50 µg/g, b.d.) + NB-UVB* (twice weekly)

NB-UVB starting</td>
<td>3 months</td>
<td>1º Outcome:
PASI reduction

PASI 50

Other outcomes:
Clear

Non-responder</td>
<td>Not stated</td>
</tr>
</table>

Clin. Res, 31(5/6):169-174.2005 REFID: ROUSSAKISCHULZE2005	Not mentioned **Washout period:** 90 days if using systemic therapy, 30 days if using topicals **Sample size calculation:** Not stated **ITT Analysis**: Yes **Drop outs:** None		<table><tr><td>Age</td><td>44.93±6.48</td><td>49.53±22.01</td></tr><tr><td>Skin type I/II/III/IV</td><td>0/11/3/1</td><td>2/5/6/2</td></tr></table>		dose 80% MED and inc. by 20% every 3 sessions *Cosmetico, 10 lamps Helarium B1, 100 W each. 311-313 nm			

Effect size

PASI

	Calcipotriol (n=15)	**Calcipotriol + NB-UVB (n=15)**

Number of patients achieving PASI 50	6	12 **(p<0.05)**
Mean PASI at baseline	2.51 ±1.89	5.73 ±2.89
Mean PASI after treatment	1.27 ±1.25	2.51 ±2.34
Mean change in PASI	-1.24 ±1.54	-3.22 ±1.70
Relapse at 3 months		2

Clear

	Calcipotriol (n=15)	Calcipotriol + NB-UVB (n=15)
Clear	4	2

Author conclusion

The response to narrow-band UVB with calcipotriol was superior to calcipotriol monotherapy

H.9.2 Calcipotriol + BB-UVB versus Calcipotriol

Reference	Study type	Number of patients	Patient characteristics	Intervention	Comparison	Length of follow-up	Outcome measures	Source of funding

<table>
<tr>
<td>K. Kragballe. Combination of topical calcipotriol (MC 903) and UVB for psoriasis vulgaris. Dermatologica. 181:211-214.1990

REFID: KRAGBALLE1990</td>
<td>RCT

Single centre

Denmark

Randomised:

Right/left comparison: patients randomised to have UVB on right/left side

Allocation concealment:

Not stated

Blinding:

Open

Washout:

No systemic therapy for 2 months or topical therapy for at least 2 weeks prior to study</td>
<td>Total N = 20 patients, 40 body halves</td>
<td>Inclusion criteria:

Patients 18 years or older with symmetrically distributed chronic plaque psoriasis.

Exclusion criteria:

Patients intolerant of UV light, patients whose psoriasis worsens with UV light exposure

Baseline characteristics of randomised patients:

<table>
<tr><td>Sex: M/F</td><td>10/10</td></tr>
<tr><td>Mean Age, y</td><td>47</td></tr>
<tr><td>Disease duration, y</td><td>19</td></tr>
<tr><td>BSA involved, %</td><td>17</td></tr>
</table>
</td>
<td>Calcipotriol

N=20 halves

Calcipotriol ointment 50 µg/g twice daily</td>
<td>Calcipotriol + BB-UVB

N=20 halves

Calcipotriol ointment 50 µg/g twice daily + BB-UVB radiation 3 times a week

UVB 280-350 nm (TL 60), suberythemogenic starting at 50% MED</td>
<td>12 weeks total: 8 weeks of therapy, 4 week post-therapy (emollient only)</td>
<td>1º Outcome:

Clearance

Other outcomes:</td>
<td>Not stated, however ointment provided by Leo Pharmaceutical Products</td>
</tr>
</table>

	Sample size calculation: Not performed **ITT Analysis**: No **Drop outs:** 2 patients							

Effect size

Clearance at week 8

	Calcipotriol + BB-UVB	**Calcipotriol**
Number of halves cleared	7	3
Excellent improvement	9	12

17% of patients in calcipotriol alone group and 39% of patients in calcipotriol + UVB group (NS)

2 patients developed mild facial dermatitis with slight erythema and scaling around the mouth (group not stated) which disappeared during continue treatment

After a 4 week post-therapy follow-up with emollient use only, i.e. study week 12, 12/13 patients were relapse-free

No other outcomes of interest **Author conclusion** These results show that the combination of topical calcipotriol and UVB radiation is well tolerated

H.9.3 Calcitriol + BB-UVB versus Placebo + BB-UVB

Reference	Study type	Number of patients	Patient characteristics	Intervention	Comparison	Length of follow-up	Outcome measures	Source of funding
J. Ring, L. Kowalzick, E. Christophers, W.B. Schill, E. Schopf, M. Stander, H.H. Wolff, P. Altmeyer. Calcitriol 3 µg g^{-1} ointment in combination with ultraviolet B phototherapy for the treatment of	**RCT** **Multicentre,** **Germany** **Randomised:** Method not stated **Allocation concealment:** Not stated	**Total N =** 104	**Inclusion criteria:** Patients over 18 years of age with chronic plaque-type psoriasis and global severity classification of ≥2 (moderate) and skin type I, II, II or IV **Exclusion criteria:** Pregnant & breast-feeding women, use of topical treatments other than emulsifying ointments or tar shampoos during study	N= 49 Calcitriol ointment (Silkis; 3 µg/g, b.d.) + BB-UVB (290-320 nm) Max. 24 sessions of UVB therapy	N= 53 Placebo (vehicle) + BB-UVB (290-320 nm) Max. 24 sessions of UVB therapy	8 weeks	**1º Outcome:** Global severity score PASI **Other outcomes:** Adverse events	Grant from Galderma Laboratories

plaque psoriasis: results of a comparative study. *Br J Dermatol*. 144:495-499. 2001 REF ID: RING2001	**Washout:** 2 months (intralesional therapy or photochemotherapy) **Blinding:** Double-blind **Sample size calculation:** Not stated **ITT Analysis**: Modified ITT (patients who used study medication for at least 1 day, had a at least 1 UVB treatment and had at least 1 postbaseline assessment) **Drop outs:** 2 patients – outcomes not reported		period, sensitisation to calcitriol or phototherapy, concomitant bacterial, fungal or viral skin conditions **Baseline characteristics of randomised patients:** Stated no significant difference in demographic data between groups					

Effect size

	Calcitriol + UVB (n=49)	**Placebo + UVB (n=53)**
Considerable improvement or clearing	22	11
% change in PASI	65%	43%

Adverse events

	Calcitriol + UVB	**Placebo + UVB**
Adverse events	11 (22%)	13 (25%)
Withdrawal due to adverse events	2 (rash, suspected diverticulitis)	1 (rash)

Number of UVB treatments

	Calcitriol + UVB (n=49)	**Placebo + UVB (n=53)**
Range of number of UVB treatments	4-29	3-35

However, combination group exposed to 34% less radiation than placebo + UVB group.

PASI scores decreased for both groups – scores for calcitriol treated patients significantly lower than those for vehicle group from week 4 onwards ($P<0.05$)

Author conclusion:

High levels of clinical efficacy and local tolerance demonstrated in this study indicate that calcitriol in combination with UVB has considerable potential for the management of patients with chronic plaque psoriasis, particularly on a long-term basis

H.9.4 Calcipotriol + NB-UVB versus Placebo + NB-UVB

Reference	Study type	Number of patients	Patient characteristics	Intervention	Comparison	Length of follow-up	Outcome measures	Source of funding
W.K. Woo, K.E. McKenna. Combination TL01 ultraviolet B phototherapy and topical calcipotriol for psoriasis: a prospective randomized placebo-controlled clinical trial. *Br J Dermatol*. 149:146-150. 2003	**RCT** Single centre N. Ireland **Randomised:** Computer-generated randomisation **Allocation concealment:** Randomisation codes concealed by	**Total N =** 50	**Inclusion criteria:** Patients aged ≥18 years with psoriasis (chronic plaque and/or guttate psoriasis) **Exclusion criteria:** Standard contraindications for phototherapy; history of photosensitivity, skin carcinomas, cataracts, epilepsy, known hypercalcaemia, hypersensitivity to calcipotriol, hypersensitivity to cetomacrogol, cetostearyl, alcohol or paraffin	**Calcipotriol + NB-UVB** N=25 TL01 phototherapy + topical calcipotriol Calcipotriol cream 50 µg/g applied	**Placebo + NB-UVB** N=25 TL01 phototherapy + emollient (placebo) Emollient cream applied twice	10 weeks post-treatment	**1º Outcome:** PASI **Other outcomes:** PDI Adverse events	Not stated

<table>
<tr>
<td>REFID
WOO2003</td>
<td>pharmacy until end of trial

Blinding:
Double-blinded: Patients blinded, assessor blinded

Washout:
2 months – phototherapy/systemic antipsoriatic therapy

Sample size calculation:
Not stated

ITT Analysis:
Yes

Drop outs:
6 in active group, 8 in control</td>
<td></td>
<td>Baseline characteristics of randomised patients:
<table>
<tr><th></th><th>Calcipotriol + TL01</th><th>Placebo + Tl01</th></tr>
<tr><td>Mean age, y</td><td>38.2</td><td>43.3</td></tr>
<tr><td>Sex: M/F</td><td>12/13</td><td>16/9</td></tr>
<tr><td>Mean duration of disease, y</td><td>14.2</td><td>20.6</td></tr>
<tr><td>Mean baseline PASI</td><td>12.4</td><td>14.1</td></tr>
</table>
Stated no significant differences in demographic characteristics/baseline PASI</td>
<td>twice daily, max 100 g per week. Applied 2 hrs prior to UVB.

TL01 three times a week starting at 70% MED with 20% increments as tolerated, max. 20 sessions</td>
<td>daily

TL01 three times a week starting at 70% MED with 20% increments as tolerated, max. 20 sessions</td>
<td></td>
<td></td>
<td></td>
</tr>
</table>

Effect size

Outcome

Mean PASI score

	TL01 + calcipotriol	**TL01 + placebo**	**P-value (active vs. placebo)**
Baseline	12.4	14.1	-
8th treatment session	4.8	11.6	P<0.01
14th session	2.5	6.5	P<0.01
20th session	1.3	2.3	NS
Week 5 post-treatment	*2.6*	*4.4*	*NS*
Week 10 post-treatment	*3.1*	*4.3*	*NS*

Mean difference in PASI score

	TL01 + calcipotriol	**TL01 + placebo**	**Difference (95% CI)**	**P-value (active vs. placebo)**
8th treatment session	6.2	2.6	3.6 (1.0-6.2)	0.008
14th session	9.1	7.4	1.7 (-2.2-5.6)	0.4
20th session	9.8	11.8	-2.0 (-5.9-1.9)	0.3

Adverse events

	Tl01 + calcipotriol	**Tl01 + placebo**	**P-value (active vs. placebo)**
Number of adverse events	9	4	NS

Withdrawal due to adverse events

	Tl01 + calcipotriol	**Tl01 + placebo**
Number of withdrawals due to adverse events	0	1

Mean number of UVB exposures

	Tl01 + calcipotriol	**Tl01 + placebo**
Mean number of UVB exposures	18.7	20.4

Author conclusion

Combing TL01 phototherapy with topical calcipotriol cream has a UVB-sparing effect

H.9.5 Calcipotriol + BB-UVB versus Placebo + BB-UVB

<table>
<tr><th>Reference</th><th>Study type</th><th>Number of patients</th><th>Patient characteristics</th><th>Intervention</th><th>Comparison</th><th>Length of follow-up</th><th>Outcome measures</th><th>Source of funding</th></tr>
<tr>
<td>C.A. Ramsay, B.E. Schwartz, D. Lowson, K. Papp, A. Bolduc, M. Gilbert, and other members of the Canadian Calcipotriol and UVB Study Group. Calcipotriol cream combined with twice weekly broad-band UVB phototherapy: a safe, effective and UVB-sparing antipsoriatic combination treatment. Dermatology. 200:17-24. 2000</td>
<td>RCT
Multicentre
Canada

Randomised:
Computer-generated

Allocation concealment:
Not stated

Blinding:
Single-blind (investigator)

Sample size calculation:
No</td>
<td>Total N = 164

159 included in ITT population</td>
<td>Inclusion criteria:
Out-patients with a clinical diagnosis of extensive body psoriasis (20-40% body surface area) with skin types I, II, III, or IV

Exclusion criteria:
Hypercalcaemia, impaired renal function, previous or current carcinoma of the akin or actinic keratosis.

Baseline characteristics of randomised patients:
<table>
<tr><th></th><th>Calcipotriol + BBUVB (n=84)</th><th>Placebo + BBUVB (n=80)</th></tr>
<tr><td>Mean Age, y</td><td>45.7</td><td>43.2</td></tr>
<tr><td>Sex: M/F</td><td>53/31</td><td>46/34</td></tr>
<tr><td>Skin type I/II/III/IV</td><td>3/27/42/12</td><td>7/29/31/13</td></tr>
<tr><td>Mean</td><td>11.6</td><td>11.7</td></tr>
</table>
</td>
<td>Calcipotriol + BB-UVB

N=80

Calcipotriol cream (50 µg/g, twice daily, max. 100 g/week) + BB-UVB twice weekly</td>
<td>Placebo + BB-UVB

N=79

Vehicle cream (Placebo) + BB-UVB three times a week</td>
<td>Treatment phase 12 weeks, post-treatment follow-up 12 weeks

During post-treatment follow-up only emollient cream permitted</td>
<td>1º Outcome:
80% reduction in modified PASI (excludes head)

Other outcomes:
Clearance

Number of UVB treatments

Relapse

% change in</td>
<td>Leo</td>
</tr>
</table>

REFID: RAMSAY2000	**ITT Analysis**: Yes **Washout:** 1 week washout. No systemic antipsoriatic treatment or phototherapy within 2 months. Patients not permitted to take any other topical/systemic medication that could affect their psoriasis **Drop outs:** 5 patients (2 lost to follow-up, 1 exclusion criteria emerging, 1 other and 1 erysipelas) 29 patients did		Baseline PASI				PASI	

	not complete treatment (14 group A, 15 group B), 5 patients withdrawn during follow-up phase							

Effect size

PASI at 12 weeks

	Group A (n=80)	**Group B (n=79)**	**P-value**
Baseline (mean ±SD)	11.6 ±4.9	11.7 ±4.5	
Mean % reduction in PASI at end of treatment	77% ±39.4%	80.1% ±25.2%	=0.554 (NS)
Number of patients achieving modified PASI 80	61	58	

Clearance at 12 weeks

	Group A	**Group B**	**P-value**
Clearance or marked improvement (investigator)	58	61	=0.432 (NS)
Clearance or marked improvement (patient)	56	59	=0.157 (NS)

Clearance	48	51	

Number of UVB treatments at 12 weeks

	Group A	**Group B**	**P-value**
Median number of UVB treatments to achieve modified PASI-80	12	19	<0.001 (SS)
Median number of UVB treatments to achieve clearance	22 (8-25)	25 (14-35)	<0.001 (SS)
Cox hazards model of number of treatments to clear	Median Tx to clear: 22	Median Tx to clear: 25	RR 2.59 (1.71-3.92)
Cox hazards model of number of treatments to achieve modified PASI-80	Median Tx to PASI80: 12	Median Tx to PASI80: 19	RR 3.66 (2.16-6.20)

Adverse events

	Group A (n=80)	**Group B (n=79)**
Adverse events	46	53
Burn, erythema, pruritus	22	33

Relapse during post-treatment follow-up of those who cleared

	Group A	**Group B**	**OR**	**p-value**
Relapse (requiring treatments other than emollients)	n=47	n=48	0.81 (0.29-2.21)	0.677

Author conclusion Calcipotriol cream + twice weekly broad-band UVB phototherapy is an effective and safe anti-psoriatic treatment, resulting in fewer UVB exposures, lower cumulative irradiance and a saving of time.

H.9.6 Dithranol + BB-UVB versus Placebo + BB-UVB

Reference	Study type	Number of patients	Patient characteristics	Intervention	Comparison	Comparison 2	Length of follow-up	Outcome measures	Source of funding
M-J.P. Gerristen, J.B.M. Boezeman, M.E. Elbers, P.C.M. van de Kerkhof. Dithranol Embedded in crystalline monoglycerdides combined with phototherapy (UVB): a new approach in	**RCT** Single centre Netherlands **Randomised:** Randomised left-right body comparison **Allocation concealment**	**Total N** = 36 patients, 72 body halves	**Inclusion criteria:** Patients with stable psoriasis and between 5 and 35% whole body surface involved, symmetrical distribution of lesions, severity scores of ≥3 for each symptom for at least one compartment of one body half **Exclusion criteria:** Any concomitant disease which may interfere with the evaluation of efficacy/accomplishment of	**Dithranol** N=24 body halves Group A: Dithranol (Micanol)	**Dithranol + BB-UVB** N=24 body halves Group B: Dithranol (Micanol)+ UVB	**Plaecbo + BB-UVB** N=24 body halves Group C: Placebo + UVB	8 weeks treatment 27 weeks follow-up of patients in complete remission on four post-treatment visits	**1º Outcome:** Number of weeks taken to obtain a reduction in lesions of one body half to 1% or less of whole body surface	Zyma netherland, Zyma SA Nyon

<table>
<tr>
<td>the treatment of psoriasis. Skin Pharmacol Appl Skin Physiol. 11:133-139.1998

REFID: GERRISTEN1998</td>
<td>:

No

Blinding:

Part open, part double-blind

Sample size calculation:

No

ITT Analysis:

Yes

Washout:

Systemic treatment not permitted within 4 weeks, topical treatment not permitted</td>
<td></td>
<td>study, concomitant therapy with (e.g. lithium, b-blockers, antimalaria drugs, systemic corticosteroids, NSAIDs, cytostatics), inability to follow instructions, alcohol and drug abuse, known intolerance or unresponsiveness to dithranol or UVB, pregnancy

Baseline characteristics of randomised patients:

Left-right body comparisons

Mean age 46.9 years

Mean PASI scores comparable across body halves

<table>
<tr><td></td><td>Grp A</td><td>Grp B</td><td>Grp C</td></tr>
<tr><td>Mean baseline PASI score</td><td>13.1</td><td>13.2</td><td>12.1</td></tr>
</table>
</td>
<td></td>
<td>UVB (Voltarc F71T12/2072 285-350 nm)

three times a week

Micanol starting dose 0.25%, titrated up to 0.65, 1, 2 and 3% if no irritation

UVB started at 50% MED</td>
<td></td>
<td></td>
<td>area together with a severity score of 1 or less for each symptom for all lesions on one body half

Other outcomes:

Remission period</td>
<td></td>
</tr>
</table>

	within 2 weeks. **Drop outs:** 9 patients during follow-up								

Effect size

	Dithranol (n=24 halves)	**Dithranol + BB-UVB (n=24 halves)**	**Plaecbo + BB-UVB (n=24 halves)**
Number achieving healing (≤1% BSA, ≤1 on all severity scores)	7 halves	15 halves	11 halves
Duration of treatment for healing (weeks)	Mean: 6.4 Median: 5.7	Mean: 6.1 Median: 6.4	Mean: 5.9 Median: 6.4
Marked improvement	7 halves	13 halves	7 halves
Median number of weeks to severity score ≤1 (remission)	3.7 weeks	3.7 weeks	3.6 weeks
Irritation requiring adjustment of Micanol	4 halves	2 halves	Not reported
Still in remission during 27 weeks follow-up of patients in complete remission on four post-treatment visits	33%	23%	20%

Author conclusion The safety and tolerability of Micanol make this active substance an important tool in the management of psoriasis

H.9.7 Calcipotriol + NB-UVB versus NB-UVB

Reference	Study type	Number of patients	Patient characteristics	Intervention	Comparison	Length of follow-up	Outcome measures	Source of funding
S. Brands, M. Brakman, J.D. Bos, M.A. de Rie. No additional effect of calcipotriol ointment on low-dose narrow-band UVB phototherapy in psoriasis. *J Am Acad Dermatol*. 41:991-5.1999	**RCT** Multicentre Netherlands **Randomised:** By odd/even numbers **Allocation concealment:** **Blinding:** Single blind	**Total N** = 53	**Inclusion criteria:** Outpatients with plaque psoriasis, skin phototypes II, II, and IV. **Exclusion criteria:** History of photoaggravated psoriasis or cutaneous malignancy, use of phototoxic drugs or drugs that might influence psoriasis, natural or artificial phototherapy **Baseline characteristics**	**Calcipotriol + NB-UVB** N=25 Calcipotriol ointment 50 µg/g (Daivonex) twice daily + NB-UVB (TL01) three times a week	**NB-UVB** N=28 NB-UVB (TL01) three times a week	No follow-up time given	**1º Outcome:** 'complete cure' or nor longer no further improvement PASI **Other outcomes:**	LEO Pharmaceutical Products

REFID: BRANDS1999	**Washout:** Systemic therapy 3 weeks, topical therapy 1 week **Sample size calculation:** Yes, 80% power to detect difference of at least 15% reduction in PASI with n=30 **ITT Analysis**: Yes **Drop outs:** 11 patients		**of randomised patients:** Stated no significant differences between study groups with respect to age, initial PASI and skin phototypes however detailed information by group not given	---------- **Both Groups** Emollients, tar-containing shampoo and desoximetasone lotion 0.25% for the scalp region allowed in both groups				

Effect size

PASI

	Calcipotriol + NB-UVB (n=25)	**NB-UVB (n=28)**	**p-value**

Mean PASI pre-treatment (range)	13.2 (3.5-27.3)	12.5 (0.7-19.2)	
Mean PASI post-treatment (range)	3.0 (0.7-19.2)	3.1 (0.7-24.0)	
% reduction	79.3%	75.5%	0.77

Number of NB-UVB treatments

	Calcipotriol + NB-UVB (n=25)	**NB-UVB (n=28)**	**P-value**
Mean number of UVB treatments	31.0	31.7	0.81 (NS)

Withdrawal due to adverse events

	Calcipotriol + NB-UVB (n=25)	**NB-UVB (n=28)**
Withdrawal due to adverse events	2	0

H.9.8 Tar oil + low dose BB-UVB versus Placebo + high dose BB-UVB

Reference	**Study type**	**Number of patients**	**Patient characteristics**	**Intervention**	**Comparison**	**Length of follow-up**	**Outcome measures**	**Source of fundin**

<table>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>g</td></tr>
<tr>
<td>A. Menkes, R.S. Stern, K.A. Arndt. Psoriasis treatment with suberythrogenic ultraviolet B radiation and a coal tar extract. J Am Acad Dermatol. 12:21-25.1985

REF ID: MENKES1985</td>
<td>RCT

Single centre

USA

Randomised:

Random numbers, 3:2

Allocation concealment:

Not stated

Blinding:

No

Washout:

All patients only used bland emollients 4 weeks prior to study, no PUVA or methotrexate for 12 weeks prior</td>
<td>Total N = 49</td>
<td>Inclusion criteria:

Outpatients with stable plaque psoriasis

Exclusion criteria:

None stated

Baseline characteristics of randomised patients:
<table>
<tr><td></td><td>Tar oil</td><td>Control</td></tr>
<tr><td>%Male</td><td>53</td><td>53</td></tr>
<tr><td>Age of enrolment</td><td>39</td><td>34</td></tr>
<tr><td>% of skin affected by psoriasis

<11/11-25/>25</td><td>37/50/13</td><td>56/11/33</td></tr>
</table>
</td>
<td>Tar oil + low dose BB-UVB

N=30

Tar oil (twice daily) and suberythemogenic UVB (three times a week)

BB-UVB Westinghouse FS40 280-320 nm

UVB starting dose = 50% MED</td>
<td>Placebo + high dose BB-UVB

N=19

Maximally erythemogenic UVB (three times a week) and emollients (white petrolatum)

UVB starting dose = MED</td>
<td>Until clear or up to 36 UVB treatments (12 weeks)</td>
<td>1º Outcome:

Clearance (complete resolution of >90% of original affected areas exposed to UVB)

Other outcomes:</td>
<td>Not stated</td>
</tr>
</table>

	Sample size calculation: Not stated **ITT Analysis**: No – available case **Drop outs:** 10 patients (compliance failures)							

Effect size

Clearance

	Tar oil + BB-UVB (n=30)	**Placebo + BB-UVB (n=19)**	**P-value**
Number of patients achieving clearance	19	14	0.08 (NS)

Number of UVB treatments

	Tar oil + BB-UVB	Placebo + BB-UVB	P-value
Mean number of UVB treatments for clearance	17	21	**<0.05 (SS)**

Author Conclusion

For most patients with moderate psoriasis, suberythemogenic UVB and tar oil is an effective, low-cost and acceptable outpatient therapy

H.9.9 Calcipotriol + NB-UVB versus NB-UVB

Reference	Study type	Number of patients	Patient characteristics	Intervention	Comparison	Length of follow-up	Outcome measures	Source of funding
J.H. Rim, Y.B. Choe, J.I. Youm. Positive effect of using calcipitriol ointment with narrow-band ultraviolet B phototherapy in psoriatic patients. *Photodermatol Photoimmunol*	**RCT** Single centre Korea **Randomised:** Method not stated **Allocation**	**Total N =** 28	**Inclusion criteria:** Outpatients with chronic plaque psoriasis affecting >5% BSA **Exclusion criteria:** Patients with a history of photosensitive disease or cutaneous malignancy or who had used phototoxic drugs or arsenic, pregnant women	**Calcipotriol + NB-UVB** N=10 Calcipotriol (50 µg/g, Daivonex, twice daily) + NB-UVB (TL01 three times a	**NB-UVB** N=18 NB-UVB (TL01 three times a week)	Around 6 weeks (not precisely defined)	**1º Outcome:** Grade I-IV I minimal improvement, II definite improvement, III considera	

<table>
<tr>
<td>*Photomed*. 18:131-134.2002

REF ID: RIM2002</td>
<td>concealment:
Not stated

Blinding:
Open

Washout:
No systemic/UV therapy 4 weeks prior to study

Sample size calculation:
Not performed

ITT Analysis:
Yes

Drop outs: 4 overall</td>
<td></td>
<td>Baseline characteristics of randomised patients:

<table>
<tr><th></th><th>Calcipotriol + UVB</th><th>UVB</th></tr>
<tr><td>Mean age, y</td><td>39.7</td><td>39.7</td></tr>
<tr><td>Sex: M/F</td><td>7/11</td><td>3/7</td></tr>
<tr><td>Initial PASI score</td><td>17.6</td><td>16.3</td></tr>
</table>

Stated no significant difference in baseline characteristics</td>
<td>week)

Both Groups:
NB-UVB Started at the lower of: 70% MED or 0.3 J/cm^2 for type III skin, 0.4 J/cm^2 for type IV/V skin</td>
<td></td>
<td></td>
<td>ble improvement,
IV clearing (>95% improvement)

Other outcomes:
Number of phototherapy sessions</td>
<td></td>
</tr>
<tr>
<td colspan="8">Effect size</td>
</tr>
</table>

Clearance

	Calcipotriol + NB-UVB (n=10)	NB-UVB (n=18)
Number of patients clearing (Grade IV)	9	11

PASI

Change in PASI given graphically – not extractable

Difference in PASI reductions of the two groups was significant at week 2 ($P<0.05$) but difference not maintained at weeks 4, 6, and 8

Number of UVB treatments

	Calcipotriol + NB-UVB (n=10)	NB-UVB (n=18)
Mean number of UVB treatments – trunk	14.3 ±5.8	15.7 ±4.1
Mean number of UVB treatments – extremities	16.0 ±4.3	18.5 ±4.8

Withdrawal due to adverse events

	Calcipotriol + NB-UVB (n=10)	NB-UVB (n=18)
Number of patients	1	1

Mild to moderate burn

	Calcipotriol + NB-UVB (n=10)	NB-UVB (n=18)
Number of patients	2	2

Author conclusion: Higher percentage of patients attained grade IV at the end of therapy in the combination group and this therapy was more effective in reducing PASI early in treatment.

H.9.10 Tacalcitol + NB-UVB versus Tacalcitol

Reference	Study type	Number of patients	Patient characteristics	Intervention	Comparison	Length of follow-up	Outcome measures	Source of funding
M. Rocken, G. Messer, G. Plewig. Treatment of psoriasis with vitamin D_3 derivatives and 311-nm UVB. *J Derm Treatment*. 9(3):537-540.1998 REF ID: ROCKEN1998	**RCT** Single centre Germany **Randomised:** By body halves. Method not given **Allocation concealment:** Not stated	**Total N =** 24 patients recruited, 22 included	**Inclusion criteria:** Patients 18 years age and older with either plaque or guttate psoriasis **Exclusion criteria:** **Baseline characteristics of randomised patients:** Mean PASI 14.09 at baseline Stated no difference observed between right and left sides at	**Tacalcitol** Tacalcitol (once daily)	**Tacalcitol + NB-UVB** Tacalcitol (once daily) + NB-UVB (3 to 5 times a week) UVB started at 0.2 or 0.3 J/cm^2	3 weeks	**1º Outcome:** PASI **Other outcomes:**	

	Blinding: Open **Washout:** Not stated **Sample size calculation:** Not performed **ITT Analysis**: No **Drop outs:** 4 patients		baseline					

Effect size

	Tacalcitol (n=22)	**Tacalcitol + NB-UVB (n=22)**	**P-value**
Mean PASI at baseline	14.09	14.09	-
Mean PASI at 3 weeks	7.03	4.25	P<0.001

Withdrawal due to adverse events	0/24	1/24	

No vitamin D-related side effects reported. One patient interrupted treatment because of UVB-induced erythema.

Author conclusion

As both treatment modalities seem to be associated with little long-term side effects, the combination of tacalcitol and NB-UVB seems to be an effective therapy for patients with mild to intermediate severe psoriasis, including young adults

H.9.11 LCD + NB-UVB versus NV-UVB

Reference	Study type	Number of patients	Patient characteristics	Intervention	Comparison	Length of follow-up	Outcome measures	Source of funding
J. Bagel. LCD plus NB-UVB reduces time to improvement of psoriasis vs. NB-UVB alone. *J Drugs in Derm*. 8(4):351-357. 2009 REF ID:	**RCT** Single centre USA **Randomised:** Side of body randomised, method not stated **Allocation**	**Total N = 12 patients, 24 halves**	**Inclusion criteria:** Adults in good general health with chronic symmetrically distributed plaque psoriasis **Exclusion criteria:** Excluded if receiving any other psoriasis treatment or couldn't tolerate coal tar and/or ultraviolet radiation.	**LCD + NB-UVB** N=12 halves NB-UVB 3 times a week + Topical LCD applied twice daily (Psorent:	**NB-UVB alone** N=12 halves NB-UVB phototherapy 3 times a week	12 weeks	**1º Outcome:** Time to minimal disease/clearance **Other outcomes:** PGA Adverse events	NeoStrata Company, Inc.

<table>
<tr>
<td>BAGEL2009</td>
<td>concealment:

Not stated

Blinding:

Investigator blinded to which side received topical therapy

Washout:

None, however patients on other treatments excluded

Sample size calculation:

Not performed

ITT Analysis:

Yes

Drop outs:

None</td>
<td></td>
<td>Baseline characteristics of randomised patients:

<table>
<tr><td></td><td></td></tr>
<tr><td>Sex: M/F</td><td>7/5</td></tr>
<tr><td>Mean Age, y</td><td>44</td></tr>
<tr><td>Race: White/Black/Asian</td><td>8/1/3</td></tr>
<tr><td>Skin type: I/II/III/IV/V</td><td>1/3/4/1/3</td></tr>
<tr><td>Mean psoriasis duration, y</td><td>25</td></tr>
<tr><td>Baseline psoriasis severity: mild/moderate/severe</td><td>3/6/3</td></tr>
</table>
</td>
<td>liquor carbonis distillate 15%, equivalent to 2.3% coal tar USP) solution

Both Arms:

Patients applied Cetaphil moisturiser immediately prior to light therapy and in between sessions as needed

Treatment continued until 100% clearing or 36 NB-UVB sessions completed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</table>

Effect size

Time to minimal disease or clearance

	NB-UVB + LCD	NB-UVB	P-value
Median number of weeks	4 weeks	7 weeks	0.187 (NS)

Number of patients achieving minimal disease (PGA 1)/clearance (PGA 0)

	NB-UVB + LCD (n=12 halves)	NB-UVB (n=12 halves)	P-value
Number of patients at 2 weeks	3	3	-
Number of patients at 4 weeks	9	4	0.025 (sig)
Number of patients at 6 weeks	9	6	-
Number of patients at 8 weeks	10	7	<0.10
Number of patients at 10 weeks	10	7	<0.10
Number of patients at 12 weeks	11	11	-

Complete clearance (PGA 0) at week 12

	NB-UVB + LCD	NB-UVB	P-value
Number of patients	7	6	NS

Burn (12 weeks)

One report of mild and two reports of moderate post-UVB erythema, uniformly distributed across both sides of the body

No severe adverse events (12 weeks)

Author conclusion:

Incorporating an at-home regimen with a novel LCD solution into outpatient NB-UVB light therapy is safe, convenient, effective, and can improve psoriasis more quickly than NB-UVB light therapy alone.

Reference	Study type	Number of patients	Patient characteristics	Intervention	Comparison 1	Comparison 2	Length of follow-up	Outcome measures	Source of funding
J.F. Bourke, S.J. Iqbal, P.E. Hutchinson. The effects of UVB plus calcipotriol on systemic calcium homeostasis in patients with chronic plaque psoriasis. *Clin Exp Derm*.	**RCT** Single centre UK **Randomised:** Method not stated **Allocation concealment:**	**Total N = 30**	**Inclusion criteria:** Patients with chronic plaque psoriasis aged between 18 and 75 years **Exclusion criteria:** Pregnant or lactating females and patients receiving systemic psoriasis therapy,	**NB-UVB** N=10 NB-UVB therapy 3 times a week	**Calcipotriol** N=10 100 g calcipotriol 50 µg/g ointment per week	**NB-UVB + Calcipotriol** N=10 NB-UVB therapy 3 times a week + 100 g calcipotriol 50 µg/g ointment	4 weeks	**1º Outcome:** Serum calcium/phosphate **Other outcomes:** PASI	Leo Laboratories Ltd.

22:259-261.1997 REF ID: BOURKE1997	No **Blinding:** Open **Washout:** All topical medications other than emollients stopped 1 week prior to study entry **Sample size calculation:** Not performed **ITT Analysis**: Yes **Drop outs:** None		taking vitamin D, calcium supplements or thiazide diuretics excluded **Baseline characteristics of randomised patients:** Stated groups matched for age and sex			per week			

Effect size

PASI

Mean PASI	NB-UVB alone (A)	Calcipotriol alone (B)	UVB + Calcipotriol (C)
Baseline	12.0	11.7	14.6
4 weeks	7.5 (P=0.013)	6.3 (P=0.013)	3.4* (P=0.009)

*improvement in UVB + calcipotriol group significantly (P=0.045) greater than in the other two groups

Author conclusion:

Combination of UVB plus maximum recommended amount of calcipotriol is a safe and effective treatment for chronic plaque psoriasis and has little adverse effect on systemic calcium homeostasis

H.9.12 Broadband UVB triple combination versus short contact dithranol

Reference	Study type	Number of patients	Patient characteristics	Intervention	Comparison	Length of follow-up	Outcome measures	Source of funding

<table>
<tr>
<td>Y. Paramsothy, M. Collins, C.M. Lawrence. Effect of UVB therapy and a coal tar bath on short contact dithranol treatment for psoriasis. Br J Dermatol. 118:783-789.1988

REF ID: PARAMSOTHY1988A</td>
<td>RCT

Single centre

UK

Randomised:

Patients randomised after SCDT, method not stated

Allocation concealment:

No

Blinding:

Open

Washout:

Not stated

Sample size calculation:

Not reported</td>
<td>Total N = 53</td>
<td>Inclusion criteria:

Patients with stable chronic plaque psoriasis requiring inpatient treatment. Patients divided into either 35% or less and 36% or more body surface area involvement

Exclusion criteria:

Not reported

Baseline characteristics of randomised patients:
<table>
<tr><th></th><th>SCDT+ UVB (n=27)</th><th>SCDT (n=26)</th></tr>
<tr><td>Age, y</td><td>46.9</td><td>42.5</td></tr>
<tr><td>Sex: M/F</td><td>15/12</td><td>17/9</td></tr>
<tr><td>Mean %BSA</td><td>30.8%</td><td>28%</td></tr>
<tr><td>Mean disease duratio</td><td>6.1</td><td>7.6</td></tr>
</table>
</td>
<td>Triple combination

N=27

Short contact dithranol + coal tar bath + BB-UVB (285-350 mm wavelength, five times a week)

UVB started at 50% MED

Both Arms:

Dithranol started at 1% and increased every 2nd/3rd day if no inflammation of</td>
<td>Dithranol only

N=26

Short contact dithranol emollient (placebo)</td>
<td>Unclear, however some outcomes reported up to 69 weeks</td>
<td>1º Outcome:

Clearance (point at which patient had <3% of their skin involved by psoriasis)

EXCLUDES FACE, SCALP, AND FLEXURES*

Other outcomes:

Relapse</td>
<td>Not stated</td>
</tr>
</table>

	ITT Analysis: No **Drop outs:** 5 patients withdrew from study – reasons not given (SCDT alone group)		n, months			surrounding skin Dithranol inflammation treated with 0.25% fluocinalone acetonide cream Other topical agents used on areas not suitable for SCDT (flexures, scalp, face) – these areas were excluded from study				
Effect size 5 patients withdrew from study (reasons not stated) therefore ITT analysis used **Clear (excluding scalp, face, flexures)**										

	SCDT+UVB (n=27)	SCDT (n=26)	P-value
Number of patients	20	16	>0.05 (NS)

Time to clearance

	SCDT + UVB	SCDT
Mean number of days	20.3±1.6	19.5±2.6

Relapse

	SCDT + UVB	SCDT
Mean number of weeks to relapse	18.9 (5-48 weeks)	10.6 (1-26 weeks)
Relapse rate	14/20	13/16

Adverse events

20 patients who cleared developed erythema on at least one occasion with (mean 3, range 1-8 episodes). 5 patients who failed to clear (mean 4.4, range 2-8 episodes). Therefore, overall 25/27 patients developed erythema with UVB therapy.

Author conclusion:

This study shows that UVB therapy does not improve the clearance of psoriasis in SCDT, but does significantly postpone relapse.