Patients with hidradenitis suppurativa may suffer from neuropathic pain: A Finnish multicenter study

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Short title: Pain in hidradenitis suppurativa

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Patients with hidradenitis suppurativa (HS) have a diminished quality of life (QoL), and pain being a major contributor to poor QoL[1, 2]. A recent study reported that pain was the only contributor for decreased QoL if the severity of disease was excluded[3]. Despite the immense impact of pain in patients with HS, there is lack of studies that more closely analyze the pain in these patients.

This multicenter study was conducted in Finland. Patients who were diagnosed with HS at least 6 months prior to the study period were retrospectively identified. Pain intensity and type were evaluated during the study visit using the visual analog scale (VAS) and painDETECT. The dermatological life quality index (DLQI) questionnaire and Beck's depression inventory (BDI) were used to evaluate the patients' QoL and the severity of depression. Methods are described in detail in Additional materials.

92 patients were included in the study. Patient characteristics are presented in Table S1. In painDETECT, 31.5% of patients were defined as having suspicion of neuropathic pain (NeP, 'NeP positive'), 41.3% as having no NeP('NeP negative'), and 27.2% were classified as having unclear results. (Table 1) Most patients reporting moderate to severe pain by VAS were also "'NeP positive' (Table 1). The percentage of patients in different pain groups stratified by disease severity is described in Table 1.

Patients reporting NeP had more psychiatric comorbidities (44.8%, n=13/29), such as depression and sleep disorders, compared with patients in the 'pain negative' (23.7%, n=9/38) or 'pain unclear' (24.0%, n=6/25) groups, but this finding was not statistically significant. No other differences were found between these groups in comorbidities. NeP negative group used less pain medication (Table S2).

DLQI and BDI scores were significantly lower in 'NeP negative' group compared to other painDETECT groups (Table 1). Of the 92 patients, 49 reported severe impairment in QoL, depression, or NeP (Figure 1).

Despite the overall mild pain level reported by the HS patients, one third of our patients were found to be ' NeP positive'' using the PainDETECT-tool, which suggests they possibly suffer from NeP. In addition, many were classified as "unclear", which may reflect the view that nociceptive and neuropathic pain could be seen as different points of the same continuum rather than different entities[4]. Anxiety and depression are known to be associated with both chronic pain and HS[5]. Although we found no differences in the diagnosed somatic comorbidities between painDETECT groups, a significantly higher BDI scores were seen among 'NeP positive' patients. When the coexistence of NeP and depression were analyzed in our patients, only slightly more than half of the patients with indicators of depression had suspicion of comorbid NeP (Figure 1). Our results further strengthen the findings that patients with HS suffer from pain and indicate that this HS-related pain may have elements of NeP. It is important that dermatologists assess the pain in patients with HS regularly and consult with other pain specialists to comprehensively treat their pain. Further studies are needed to analyze NeP in dermatological conditions.

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Conflicts of interest

Dr Huilaja has received educational grants from CSLBehring, Shire, Janssen-Cilag, Novartis, AbbVie, and LeoPharma; honoraria from Novartis, Sanofi Genzyme, and UCB Pharma for consulting and/or speaking; and is an investigator for AbbVie.

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Harri Sintonen has no conflicts of interest.

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Martta Ranta and Mirkka Hirvonen are employees of AbbVie and may or may not own AbbVie stock.

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Abbreviations

BDI: Beck Depression Inventory

DLQI: Dermatology Life Quality Index

HS: hidradenitis suppurativa

IHS4: International Hidradenitis Suppurativa Severity Score System

NeP: neuropathic pain

QoL: quality of life

VAS: visual analog scale

Table 1. Distribution of Patients in Pain-VAS and PainDETECT Groups by Gender, Hurley Stage, and IHS4 Severity, BDI and DLQI Score. Distribution of Patients in PainDETECT Groups by Reported Pain-VAS. Mean scores (range) of DLQI and BDI in different pain-VAS and painDETECT groups.

	Pain-VAS				PainDETECT			
	No Pain (0–4 mm)	Mild Pain (5–44 mm)	Moderate to Severe Pain (45–100 mm)	p-value	Pain Negative (0–12)	Unclear (13–18)	Pain Positive (19–38)	p-value
Total, n(%)	34 (37.0)	42 (45.7)	16 (17.4)		38 (41.3)	25 (27.2)	29 (31.5)	
Males	16 (39.0)	18 (43.9)	7 (17.1)		17 (41.5)	13 (31.7)	11 (26.8)	
Females	18 (35.3)	24 (47.1)	9 (17.6)	0.9326	21 (41.2)	12 (23.5)	18 (35.3)	0.5838
Hurley Stage, n(%)								
I	9 (56.3)	6 (37.5)	1 (6.3)		9 (56.3)	5 (31.2)	2 (12.5)	
II	20 (32.3)	30 (48.4)	12 (19.4)		23 (37.1)	17 (27.4)	22 (35.5)	
III	5 (35.7)	6 (42.9)	3 (21.4)	0.4399	6 (42.9)	3 (21.4)	5 (35.7)	0.4581

IHS4, n(%)								
Mild	20 (55.6)	13 (36.1)	3 (8.3)		19 (52.8)	9 (25.0)	8 (22.2)	
Moderate	10 (29.4)	18 (52.9)	6 (17.6)		13 (38.2)	6 (17.7)	15 (44.1)	
Severe	4 (18.2)	11 (50.0)	7 (31.8)	0.0212	6 (27.3)	10 (45.5)	6 (27.7)	0.0610
BDI Score, n(%)								
0–12	27 (41.5)	29 (44.6)	9 (13.9)		30 (46.1)	20 (30.8)	15 (23.1)	
13–18	4 (26.7)	7 (46.6)	4 (26.7)		7 (46.6)	4 (26.7)	4 (26.7)	
19–63	3 (25.0)	6 (50.0)	3 (25.0)	0.5674	1 (8.3)	1 (8.3)	10 (83.4)	0.0017
Psychiatric comorbidity, n(%)					9 (23.7)	6 (24.0)	13 (44.8)	0.1259

Pain-VAS, n(%)								
No pain (0–4 mm)					20 (58.8)	9 (26.5)	5 (14.7)	
Mild (5–44 mm)					17 (40.5)	12 (28.6)	13 (31.0)	
Moderate to severe (45–100 mm)					1 (6.3)	4 (25.0)	11 (68.7)	0.0016
DLQI, mean (range)	3.03 (0-9)	8.76 (0-23)	13.69 (4-29)	<0.001*	4.53 (0-16)	8.84 (1-23)	10.55 (0-29)	0.0001*
BDI, mean (range)	6.68 (0-4.0)	9.26 (0-30)	13.06 (1-32)	0.0198*	6.84 (0-20)	7.68 (0-19)	12.86 (0-32)	0.0030*

BDI, Becks Depression Inventory ; DLQI, Dermatology Life Quality Index; ; IHS4, International Hidradenitis Suppurativa Severity Score System; pain-VAS, pain visual analog scale. Chi-Square test or ANOVA (*) used for statistical analyses.

Fig 1. Number of patients with severe impairment in quality of life (DLQI >10), depression (BDI>12), or neuropathic pain (painDETECT >18). Forty-nine of 92 patients reported above indicated changes in more than one of the parameters, and indicated changes in all of the 3 parameters were present in in one-fifth (n=9) of these patients. BDI, Beck Depression Inventory; DLQI, Dermatology Life Quality Index.