

## RESEARCH LETTER

### Comparison of itch characteristics and sleep in patients with brachioradial pruritus and notalgia paresthetica: A retrospective analysis from 2 itch centers



*To the Editor:* Brachioradial pruritus (BRP; compression of the cervical spinal cord or spinal ganglia at the C5/C6 level) and notalgia paresthetica (NP; compression of the dorsal branches of T2-T6 spinal nerves) are 2 neuropathic itch syndromes that are frequently overlooked in clinical settings and are understudied. Despite their different localizations in the spinal cord and clinical presentations (BRP typically causes bilateral pruritus to the forearms, whereas NP results in circumscribed pruritus between the scapulae), these conditions are often grouped together in the literature; thus, little is known about the differences between them.<sup>1-3</sup> To date, the only prior study directly comparing these 2 conditions found that patients with BRP are more likely to report neuropathic symptoms than patients with NP, and that structural abnormalities on magnetic resonance imaging more often correlate with symptom localization in BRP.<sup>4</sup> The present study aims to help us further differentiate these conditions. Using data obtained from 2 itch centers, we compared the demographics, itch characteristics, and sleep characteristics of 1064 patients (768 BRP, 296 NP).

**Demographics (Table I):** Both BRP and NP were more common in females with BRP, at a female:male

ratio of 2.28:1 (previously reported to be 3:1),<sup>5</sup> and with NP at a ratio of 2.65:1. Between these diagnoses, there were statistically significant differences in patients' age ( $P = .02$ ): patients with NP (mean = 63.4, standard deviation [SD] = 13.2) were significantly older than patients with BRP (mean = 61.6, SD = 12.6). Additionally, statistically significant differences in patients' body mass index ( $P < .001$ ) were observed, with BRP (mean = 27.4, SD = 5.5) having a greater body mass index than NP (mean = 25.8, SD = 4.9).

**Itch characteristics (Table II):** Patients with BRP were found to have a significantly greater daily duration of their itch ( $P = .014$ ) than patients with NP; however, there were no significant differences in the total lifetime duration of their itch ( $P = .57$ ). BRP was also found to generalize more frequently than NP ( $P < .001$ ). No statistically significant differences in itch intensity (Visual Analog Scale and Numeric Rating Scale poorest and average itch in 24 hours) were observed between the 2 conditions, with a slightly higher itch intensity in BRP.

Scratch pleasurability was noted to be significantly greater in patients with NP ( $P = .002$ ), with greater alleviation of itch from scratching ( $P < .001$ ). BRP, on the other hand, was found to have significantly greater presence of scratch lesions ( $P < .001$ ), itch worsened by scratching ( $P = .04$ ), and scratching when there was no itch present ( $P = .02$ ).

**Table I.** Demographics of our patient population

	Brachioradial pruritus	Notalgia Paresthetica	Total
<b>Sex</b> (n = 1064)	Female: 534 Male: 234	Female: 215 Male: 81	Female: 749 Male: 315
<b>Age</b> (n = 1064)	Mean (SD): 61.6 (12.6) Median [IQR]: 62 [54; 70] Range: 17.9-96.1	Mean (SD): 63.4 (13.2) Median [IQR]: 64 [55; 73] Range: 17.9-94.0	Mean (SD): 62.1 (12.8) Median [IQR]: 62 [54; 71] Range: 17.9-96.1
<b>Height</b> (n = 840)	Mean (SD): 169 (9) Median [IQR]: 169 [163; 175] Range: 123-204	Mean (SD): 168 (9) Median [IQR]: 168 [163; 172] Range: 145-192	Mean (SD): 169 (9) Median [IQR]: 168 [163; 175] Range: 123-204
<b>Body mass index</b> (n = 837)	Mean (SD): 27.4 (5.5) Median [IQR]: 26.4 [23.5; 30.4] Range: 16.3-54.4	Mean (SD): 25.8 (4.9) Median [IQR]: 25.4 [22.3; 28.3] Range: 16.9-43.3	Mean (SD): 26.9 (5.4) Median [IQR]: 26.1 [23.1; 30.0] Range: 16.3-54.4

IQR, Interquartile range; SD, standard deviation.

**Table II.** Itch intensity and duration

Itch Characteristic	Itch Characteristic Subcategory	Brachioradial Pruritus	Notalgia Paresthetica	Total
<b>Itch intensity</b>	<b>Visual analog scale worst 24 h</b> (n = 784)	Mean (SD): 7.2 (2.5) Median [IQR]: 8 [6; 9] Range: 0-10	Mean (SD): 7.1 (2.1) Median [IQR]: 7.5 [6; 8.9] Range: 1.3-10	Mean (SD): 7.2 (2.4) Median [IQR]: 8 [6; 9] Range: 0-10
	<b>Visual analog scale average 24 h</b> (n = 823)	Mean (SD): 5.7 (2.6) Median [IQR]: 6 [4; 8] Range: 0-10	Mean (SD): 6.0 (2.2) Median [IQR]: 6 [4.5; 7.8] Range: 0-10	Mean (SD): 5.8 (2.5) Median [IQR]: 6 [4; 8] Range: 0-10
	<b>Numeric rating scale worst 24 h</b> (n = 353)	Mean (SD): 6.7 (2.8) Median [IQR]: 7 [5; 9] Range: 0-10	Mean (SD): 6.3 (2.8) Median [IQR]: 7 [4; 8.3] Range: 1-10	Mean (SD): 6.6 (2.8) Median [IQR]: 7 [5; 9] Range: 0-10
<b>Itch duration/ frequency</b>	<b>Total itch duration</b> (n = 783)	<6 wk: 7 6 wk-6 mo: 42 6 mo-1 y: 92 1-10 y: 320 >10 y: 109	<6 wk: 1 6 wk-6 mo: 10 6 mo-1 y: 35 1-10 y: 122 >10 y: 45	<6 wk: 8 6 wk-6 mo: 52 6 mo-1 y: 127 1-10 y: 442 >10 y: 154
	<b>Itch duration day/night</b> (n = 878)	Day: 190 Night: 88 Day and night: 370	Day: 110 Night: 20 Day and night: 100	Day: 300 Night: 108 Day and night: 470
	<b>Frequency of itch</b> (n = 829)	Daily: 493 Weekly: 77 Monthly: 31	Daily: 201 Weekly: 22 Monthly: 5	Daily: 694 Weekly: 99 Monthly: 36

IQR, Interquartile range; SD, standard deviation.

**Impact on sleep:** BRP was found to be significantly more likely to impact sleep overall ( $P < .001$ ) than NP, as well as having a more severe impact on sleep when stratified by severity of the impact ( $P = .001$ ).

These findings provide important insight into the differences between these 2, often grouped together, conditions. Our results suggest that BRP can be a more difficult condition to treat and manage, given its increased likelihood to generalize, the increased presence of scratch lesions, and greater impact on sleep. We hope these findings shed increased insight into the differences between these seemingly similar conditions and aid clinicians in future management of these patients.

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**Conflict of interest**

None disclosed.

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