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Itch intensity assessment in atopic dermatitis with different itch instruments and time frames - are there differences?

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Introduction & Objectives:

Chronic Pruritus (CP) is a cardinal symptom and major burden in atopic dermatitis (AD). Several instruments to determine pruritus intensity have been established. We aim at determining the validity of different itch instruments with different time frames in patients with AD.

Materials & Methods:

In a monocentric, open-label study, adult patients with moderate to severe AD having at least a mild itch (worst itch (WI) intensity ≥ 3/10 in the last 24h on the numeric rating scale (WI-NRS/24h)) were included. Patients received an in-label therapy with dupilumab 300mg s.c. Q2W for 16 weeks. Worst itch intensity was measured by NRS/last 24h, visual analogue scale (VAS, 0-10)/last 24h and VAS/last 4 weeks and verbal rating scale (VRS, 0-4)/last 24h. Quality of life (Dermatology life quality index; DLQI, 0-30), anxiety and depression (hospital anxiety and depression scale; HADS) were also assessed. All instruments were completed at baseline (BL) and at week 16 (W16).

Results:

49 patients (16 females; mean age, 41.1 years (32; [19-78])) were enrolled. Patients suffered from chronic pruritus for an average of 19 years (21; 19-78), showing an impaired QoL (DLQI average, 12.98 ((11; 3-30)). WI-NRS/24h was 7.46 (8; 2-10), WI-VAS/24h 6.87 (7; 2.1-10), WI-VAS/4 weeks 7.85 (8.3; 2.9-10) and WI-VRS/24h 2.52 (2; 1-4). The itch intensity scales correlated significantly among each other whereas the correlation strength of WI-VAS/4 weeks was only moderate at BL ($p < 0.001$; WI-NRS/24h / WI-VAS/24h, $r = 0.851$; WI-NRS/24h / WI-VAS/4 weeks, $r = 0.606$; WI-NRS/24h / WI-VRS/24h, $r = 0.717$; WI-VAS/24h / WI-VAS/4 weeks, $r = 0.698$; WI-VAS/24h / WI-VRS/24h, $r = 0.737$; WI-VAS/4 weeks/ WI-VRS, $r = 0.531$). All itch intensity scales (24h and 4 weeks) significantly decreased at W16 compared to BL ($p < 0.001$), with a mean reduction in pruritus intensity of 77.82%. At W16, WI-NRS/24h, WI-VRS/24h, WI-VAS/24h and WI-VAS/4 weeks correlated significantly among each other ($p < 0.001$; WI-NRS/24h / WI-VAS/24h, $r = 0.813$; WI-NRS/24h / WI-VAS/4 weeks, $r = 0.859$; WI-NRS/24h / WI-VRS/24h, $r = 0.768$; WI-VAS/24h / WI-VAS/4 weeks, $r = 0.779$; WI-VAS/24h / WI-VRS/24h, $r = 0.669$; WI-VAS/4 weeks / WI-VRS/24h, $r = 0.584$). The reduction in itch intensity was paralleled by a significant improvement of QoL ($p < 0.001$ (D 8.8)). Additionally, HADS was significantly reduced (HADS, depression $p = 0.001$ (D 2.6), anxiety $p = 0.012$ (D 1.7)). WI intensity and DLQI correlated at BL ($p < 0.001$; NRS/24h / DLQI, $r = 0.550$; VAS/24h / DLQI, $r = 0.590$; VAS/4 weeks / DLQI, $r = 0.511$; VRS/24h / DLQI, $r = 0.510$) and W16 ($p < 0.001$; NRS/24h / DLQI, $r = 0.797$; VAS/24h / DLQI, $r = 0.827$; VAS/4 weeks / DLQI, $r = 0.769$; VRS/24h / DLQI, $r = 0.689$). There was no correlation with WI intensity and HADS.

Conclusion:

Different itch intensity scales (NRS, VAS and VRS) and recall periods lead to similar results in effectively evaluating the itch intensity in this trial. Though WI-NRS/24h is the gold standard in clinical trials, using other scales gives valid results; all itch intensity assessment tools showed a sensitivity to change and correlated with the DLQI.