The Brigham Scalp Nail Inverse Palmoplantar Psoriasis Composite Index (B-SNIPI): A Novel Index to Measure All Non-plaque Psoriasis Subsets

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ABSTRACT. Psoriasis is a chronic inflammatory disease that encompasses a large spectrum of clinically distinct subtypes. Although chronic plaque psoriasis is reported as the most common form of psoriatic skin disease, there is growing evidence that other variants including scalp, nail, inverse, and palmoplantar psoriasis are prevalent, undertreated, and associated with significant impairment in quality of life. Currently, the Psoriasis Area and Severity Index (PASI) is the standard to assess psoriasis severity as well as response to treatment; however, the PASI has several limitations. In response to this need and as a complementary objective measure to the PASI, we created the Brigham Scalp Nail Inverse Palmoplantar Psoriasis Composite Index (B-SNIPI), based on patient-surveyed, patient-reported outcomes equally weighted with physician assessment of disease activity. Herein we summarize the B-SNIPI as presented at the 2013 Annual Meeting of the Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA). (J Rheumatol 2014;41:1230-2; doi:10.3899/jrheum.140177)

Key Indexing Terms:
PALMOPLANTAR PSORIASIS SCALP PSORIASIS NAIL PSORIASIS
INVERSE PSORIASIS PATIENT-REPORTED MEASURES PSORIASIS INDEX

Psoriasis is a chronic, inflammatory disease affecting 1–3% of the world's population. Although the Psoriasis Area and Severity Index (PASI) is the standard tool for assessing both psoriasis severity as well as response to treatment[1,2], the tool has several limitations: It fails to include several commonly affected areas, is not responsive to change when assessing smaller body surface areas of involvement, and does not include patient-reported outcomes (PRO)[3,4,5,6,7].

Involvement of the scalp, nails, palms, soles, and intertriginous areas may result in significant morbidity with functional impairment and greater impairment in quality of life. Nail lesions affect about 40% of patients with psoriasis and can be burdensome, causing pain and inability to work[8,9,10]. Scalp psoriasis can result in pain and pruritus and is reported by 50% to 80% of patients with psoriasis[11,12]. Palmoplantar pustular psoriasis is often a disabling condition that can lead to functional impairment, preventing some patients from working[13]. Inverse psoriasis is associated with itching and burning and has a major effect on quality of life. We have unpublished data showing these forms of psoriasis may be more common than previously considered (Qureshi A. Personal communication with Joseph Merola, January 2013). Further, while these anatomic areas encompass a small body surface area, many involve the highest potential impairment in physical and psychosocial functioning, including occupational impairment through issues of physical intimacy. However, despite these features, it is often difficult to obtain systemic and biologic therapy in these patients if they do not have chronic plaque psoriasis and/or psoriatic arthritis (PsA).

Additionally, although these subtypes are well-recognized phenotypes of psoriasis, there is no current mechanism to objectively measure their combined severity. These subtypes are not specifically addressed on the PASI, which can lead to a delay in diagnosis along with undertreatment and also prevent enrollment in clinic trials. Additionally, our unpublished data show that disease affecting these areas is associated with an increased risk of PsA, furthering the need for early diagnosis and adequate therapy (Qureshi A. Personal communication with Joseph Merola, January 2013). Existing tools such as the Nail Psoriasis Severity Index, Psoriasis Scalp Severity Index, and the Palmoplantar Pustular Psoriasis Area and Severity Index have been used individually to better study these patients; however, they are complex and cumbersome and do not adequately measure outcomes that are important to patients[14,15,16,17,18]. Given the advent of novel therapies for psoriasis, studies of these phenotypes are much needed using validated outcome measures.

To address this need, we created a novel, objective, numeric, easy-to-administer system incorporating PRO, termed the Brigham Scalp Nail Inverse Palmoplantar

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Psoriasis Composite Index (B-SNIPI), to better measure true disease severity. The B-SNIPI is designed to measure the subtypes of psoriasis, which are not addressed in the PASI, and therefore would serve to complement the PASI. The B-SNIPI is unique because it incorporates both PRO and physician assessment and weights them equally to determine an overall severity of disease score. Additionally, each of the indexes in the B-SNIPI can be used independently to assess specific phenotypes or can be used as a composite to evaluate the patient as a whole. The B-SNIPI would be particularly important in clinical trials because it would allow better monitoring of each patient's individual disease and fully assess response to therapy over time.

The B-SNIPI was developed from an initial question pool, which was generated from a review of the literature, patient data available from multicenter studies, informal open patient interviews, and expert opinion from dermatologists and rheumatologists, using a modified-Delphi process.

The B-SNIPI is a composite score derived from both physician-identified and patient-identified severity of the scalp, nails, intertriginous areas, and palms and soles — each area addressed individually. The tool is divided into a patient-reported portion and a physician-assessed portion (the 2 questionnaires are available from the authors upon request).

Patients receive a questionnaire in which each item addresses a specific anatomic location. The first question preceding each item asks the patient if he/she has involvement of the anatomic location, which is answered "yes" or "no." If the response is yes, the patient then answers 2 questions regarding the symptoms using a visual analog scale (VAS), presented as a 10-cm horizontally oriented line, with a mark on the left side representing no symptoms and a mark on the right side representing the worst possible symptoms. For each anatomic location, the patient makes a mark on the line that correlates with the extent to which they perceive their psoriasis is associated with the symptom in question.

The first item addresses scalp psoriasis, including 2 VAS questions about scalp itch (left end represents no itch; right end represents worst imaginable itch) and scalp pain (left end, no pain; right end, worst imaginable pain). The second item addresses nail involvement, including 2 VAS questions about nail-related pain (no pain vs worst imaginable pain) and how their nail involvement affects ability to work (work without any difficulty vs completely unable to work). The third item addresses inverse psoriasis, questioning itch (no itch vs worst imaginable itch) and scalp pain (no pain vs worst imaginable pain) in inverse areas. The fourth item addresses palmoplantar psoriasis, regarding itch (no itch vs worst imaginable itch) and how the palmoplantar involvement affects ability to work (able to work without any difficulty vs completely unable to work).

The investigator separately completes a questionnaire to address each anatomic location. The investigator's perception of the severity of the scalp psoriasis is summarized in 2 scores: the severity of erythema, thickness, and scale (0–5); and the amount of surface area of the scalp involved (0–5). The investigator-graded scalp severity is the sum of the 2 scores (minimum 0; maximum 10).

Similarly, fingernail severity is examined for pitting, onycholysis, and subungual hyperkeratosis of each fingernail (scored 0–5); total fingernail severity is the sum of the 2 highest scores from distinct fingernails (minimum 0; maximum 10). Toenail involvement is excluded given the high prevalence of onychomycosis, which may mimic psoriatic nail disease or occur concurrently.

For severity of inverse psoriasis, the investigator scores each area of involvement (axillary, submammary, abdominal fold, inguinal folds, and intergluteal cleft; scored 0–5). The total inverse psoriasis score is calculated from the sum of the 2 highest severity scores, and is an estimation of the overall severity of disease ranging from 0–10: very severe 9–10, severe 7–8, moderate 5–6, mild 3–4, and minimal 0–2.

Finally, the investigator measures the severity of the palmoplantar psoriasis on all 4 surfaces (palms and soles bilaterally) and assigns a severity score (0–5) to the 2 worst areas. The total palmoplantar severity is the sum of these areas (minimum 0; maximum 10).

To establish an overall severity of each of the anatomic areas, the total investigator score (0–10) for each area is added to the higher of the 2 corresponding PRO scores, resulting in a total score for each of the 4 locations (minimum 0; maximum 20). The final B-SNIPI composite score is calculated by taking the sum of 2 highest scores from the 4 indexes (scalp, nail, inverse, palmoplantar), giving a final minimum score of 0 and a maximum score of 40.

At this time, the focus for the B-SNIPI is on use in clinical trials to bring attention to these important areas of patient need. Currently, the B-SNIPI has been tested in the Brigham Center for Skin and Related Musculoskeletal Diseases (psoriasis/PsA clinic) for ease of use and range of scores. After Institutional Review Board approval was obtained at the Center, the gold standard for diagnosis of psoriasis was based on a clinical evaluation by a board-certified dermatologist. All participants responded to the questionnaire after informed consent was obtained. Currently, work is ongoing to validate sensitivity to change over time, as well as testing to assess for interrater reliability.

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