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Characterization of patient clusters based on response to treatment with secukinumab: A "pattern recognition" analysis of pooled phase 3 data

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Introduction: Psoriatic disease phenotypes range from low—high disease activity, with/without concomitant psoriatic arthritis (PsA)—heterogeneity that influences responses to biologic therapies. Secukinumab, a fully human monoclonal antibody that selectively neutralizes interleukin-17A, has been shown to have significant efficacy in the treatment of moderate to severe plaque psoriasis and PsA.

Objective: To use exploratory data analysis methods to identify response trajectory clusters following secukinumab 300 mg treatment without a priori hypotheses.

Methods: In a post hoc analysis from randomized phase 3 clinical trials data (7 trials; n = 1568), patient responses to secukinumab over time were evaluated using descriptive statistics. Time series representations and hierarchic clustering—using optimal matching distance methods—were applied to investigate the relationship between Psoriasis Area and Severity Index (PASI) and time to response, identifying patient response trajectories following secukinumab treatment.

Results: Four distinct clusters were identified with different response trajectories (PASI% change from baseline). The response clusters are categorized as: fast and strong (n = 881 [56%]), good (n = 441 [28%]), moderate/partial (n = 170 [11%], and inadequate responders/early discontinuers (n = 76 [5%]). The PASI90 proportions of each cluster (week 16, week 52) were the following: fast and strong: 95% (833/881), 94% (829/881); good: 66% (289/441), 46% (201/441); moderate/partial: 21% (36/170), 7% (12/170); and inadequate responders: 21% (16/76), 0% (0/76). The inadequate responders were mostly patients with more severe disease.

Conclusions: Over half of patients were fast and strong responders. This is the first analysis using machine learning to describe distinct clusters of secukinumab response trajectories without a priori hypotheses.

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The impact of inpatient dermatology consultation for erythroderma

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Erythroderma is a problem frequently encountered by dermatologists working on an inpatient consultative service. There are few modern studies examining the etiologies and outcomes of patients admitted to the hospital with erythroderma. Dermatology consultation is associated with improved outcomes in patients with inflammatory skin conditions. We reviewed the charts of 38 patients in whom dermatologic consultation was obtained specifically for erythroderma between 2015 and 2019 and included 35 patients with complete records. Psoriasis was the most frequent etiology in our cohort, accounting for 34% of cases. Among psoriasis patients, hospital admission was precipitated by drug discontinuation in 7/12 patients. Corticosteroids were the most frequent culprits of erythrodermic flares (5/7 cases). Interestingly, in the 5 patients who were admitted for erythrodermic flares of their psoriasis due to steroid withdrawal, 4 out of 5 patients recently received systemic steroids from a dermatologist. Drug rashes accounted for an additional 34%, with 6 cases of drug-induced hypersensitivity syndrome, and one case of toxic epidermal necrolysis. Overall, the diagnosis suspected by the primary team was confirmed in 11 cases and changed in 6. The diagnosis was narrowed appreciably in the remainder of cases. The diagnosis remained unknown despite long-term follow-up in only 2 cases. A life-threatening diagnosis (including DIHS, TEN, Sézary syndrome, and hypereosinophilic syndrome) was made in 9 instances. Dermatology consultation remains instrumental in the evaluation of patients admitted with erythroderma as consultants can frequently identify serious underlying diseases that are not initially suspected.

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Clinical experiences of dermoscopy on virus, fungi and parasites infectious skin diseases

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Introduction: Dermoscopy has been widely used in the early diagnosis of pigmented, neoplastic and inflammatory skin diseases, but are few applied for infectious skin diseases, for worry of cross-infection by contact each other.

Objective: We invented a method to prevent contamination during operation, so dermoscopy could be routinely used for observe the details of the infectious skin diseases.

Methods: The parafilm could be cut into tape strips, and then roll and cover the dermoscopy edge for 2 cycles, packaged dermoscopy with a polyethylene glove cut-off a finger-top. They are changed for each person.

Results: 1) Viruses infected skin diseases including molluscum contagiosum, verruca vulgaris, condyloma acuminatum, herpes simplex were easy to diagnoses according to their special characteristics under dermoscopy. 2) Fungal infected diseases including tinea capitis, white piedra, tinea pedis, onychomycosis, tinea cruris, tinea corporis, pityriasis versicolor, malassezia folliculitis, penicilliosis marneffei. 3) We observed all of the *Phthirus pubis* life cycle stages, namely, translucent empty nits, nits containing nymphs, nymph, and adult phases, within a single field of view. Using UV-dermoscopy, we traced a live *Demodex folliculorum* wandering at the rosacea skin surface of nasolabial folds.

Conclusions: Disposable physical barrier protection is a simple, easily available, cheap, and useful way to keep dermoscope clean. UV-dermoscopy acts as a mini and portable Wood lamp device. Dermoscopy is convenient, quick and practical to direct determination of pathogens, to find the clues of virus, fungi, or parasites infection, and to evaluate the efficacy of treatment.

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Acute syndrome of apoptotic panepidermolysis

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Toxic epidermal necrolysis (TEN) is a severe drug hypersensitivity reaction resulting in widespread keratinocyte death. A TEN-like injury can occasionally be seen in settings other than drug hypersensitivity such as lupus erythematosus, acute graft versus host disease, and pseudoporphyria. The term acute syndrome of apoptotic panepidermolysis (ASAP) has been proposed to illustrate massive epidermal cleavage from hyperacute apoptotic injury to epidermal basal cells. We present a case of a 49-year-old Caucasian woman with a long history of systemic lupus erythematosus who presented with a two-month history of a worsening photo-distributed skin eruption. She had recently stopped taking hydroxychloroquine due to insurance reasons and was not taking any medications other than applying a topical antibiotic for her chest rash. On examination, there were multiple large erythematous patches with areas of bullae formation on the scalp, face, chest, back, and extremities without buccal, conjunctival, or genital mucosal involvement. Two punch biopsies demonstrated a subepidermal blister with full thickness epidermal necrosis in addition to superficial and deep perivascular and periadnexal lymphocytic inflammation within the dermis. Given the subacute presentation of the skin eruption, absence of mucosal involvement, lack of drug ingestion, long history of SLE and positive serologies, a diagnosis of ASAP was made. Distinguishing between drug-induced TEN in a lupus patient and TEN-like cutaneous injury in SLE (ASAP) can be difficult and presents a diagnostic and therapeutic challenge to dermatologists.

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