skin diseases that can mimic dermatophyte infections as illustrated herein. As such, these data underscore the importance of continued medical education on dermatophyte infections along with proper education and training on bedside diagnostic techniques such as potassium hydroxide during residency and beyond.

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Seasonal variation of itch: A study using real-time data from 2004 to 2016

To the Editor: Itch is one of the most commonly presented symptoms to dermatologists and significantly impairs patients' quality of life. Itch is often associated with seasonal exacerbations for many patients. In this research letter, we use real-time Google Trends data and temperature data sets to examine seasonal variations in search queries for itch in the United States and United Kingdom.

Google Trends (https://www.google.com/trends/) is a resource that collects search volume data for terms queried using Google.[1] This database has recently gained much attention from multiple fields of medicine to track incidence of various diseases.[1] Search volume is represented by a relative search volume index (SVI), which ranges from 0 (no searches) to 100 (peak search volume). We collected monthly data from January 2004 to March 2016 on search queries for itch and pain. Monthly temperature was obtained using the US National Oceanic and Atmospheric Administration, and the Met Office, the United Kingdom's national weather service.[2,3]

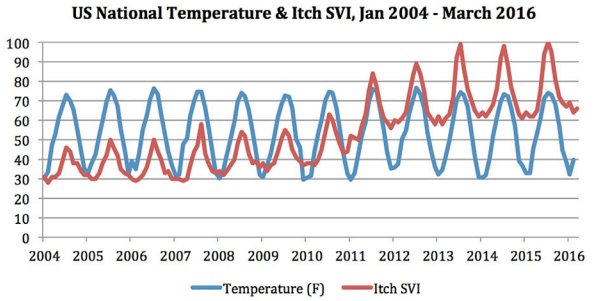

Fig 1. Search volume index (*SVI*) for itch (*red*) and US national temperature (degrees Fahrenheit) (*blue*) by month from January 2004 to March 2016. Spearman correlation shows significant correlation (0.42; $P < .0001$).

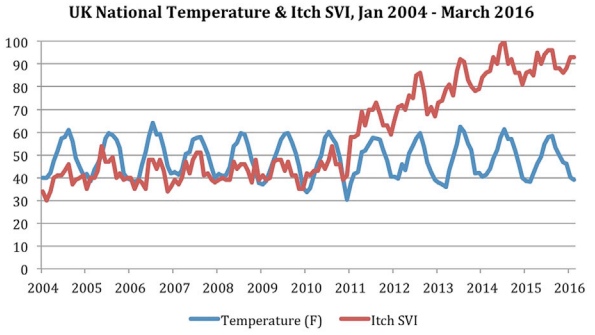

Fig 2. Search volume index (*SVI*) for itch (*red*) and United Kingdom national temperature (degrees Fahrenheit) (*blue*) by month from January 2004 to March 2016. Spearman correlation shows significant correlation (0.27; $P = .0009$).

Figs 1 and 2 display the temperature trends and SVI for "itch" in the United States and United Kingdom, respectively. Spearman correlations showed that the temperature trend and SVI for itch are significantly correlated in the United States (0.42; $P < .0001$) and the United Kingdom (0.27; $P = .0009$). In contrast, the SVI of "pain" did not display correlation with temperature (0.071; $P = .39$) (data not shown). Of note, Google applied a modification to their geographic assignment starting January 1, 2011, which caused the trend line inflection at 2011.[4]

Our results suggest that increased frequency of itch is associated with higher temperatures. This is

based on the assumption that increased search queries for itch, and thus interest, serves as a proxy of increased itch symptoms in the public. That SVI for pain did not correlate with temperature further validates our observations for itch.

The rise in itch SVI with increasing temperatures during the summer months is likely a result of the increased incidence of pruritic skin disorders, such as poison ivy and insect bites, during the summer seasons. In addition, although the seasonality of itch has not explicitly been previously studied, it is known that heat or warmth sensations are major factors that provoke the itch response.[5] The transient receptor potential vanilloid type 1 protein is involved in the induction of histaminergic-associated pruritus and is activated by heat.[5] The calcitonin gene-related peptide has also been implicated in heat-induced pruritus, as selective ablation of calcitonin gene-related peptide alpha primary sensory neurons in mice can attenuate histamine-induced scratch behaviors.[5] Furthermore, skin inflammation has been shown to reduce the temperature threshold for transient receptor potential vanilloid type 1 activation, allowing itch induction at lower temperatures.[5] Increased environmental heat stimuli is not only an independent trigger for itch in healthy skin, but can also exacerbate pre-existing pruritus at a lower heat threshold.

A limitation of this study is that the population is limited to only Google users and extrapolates Google queries to the prevalence of pruritus. This research letter serves as an initial investigation of the seasonal variation of itch.

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Combined epidermal and follicular cell suspension as a novel surgical approach for acral vitiligo

To the Editor: Autologous noncultured epidermal cell suspension (ECS) and follicular cell suspension (FCS) are effective modalities for the surgical management of stable vitiligo. There is need for further modification of these methods as repigmentation over acral and bony areas is not satisfactory with these methods. We devised a new surgical approach by combining ECS and FCS.

We followed the method described in our previous publication[1] for preparing and transplanting ECS and FCS. ECS was mixed with FCS in a 1:5 ratio. The combined suspension was transplanted to the dermabraded vitiligo patches. No additional treatment apart from regular sun exposure was advised.

In this case series, 5 patients with 12 symmetric vitiligo patches underwent combined ECS and FCS on one side and ECS on the opposite side. All except 1 patient had acral, bony, or nonsegmental vitiligo patches (Table I). Lesions were of comparable sizes with lesional stability of more than 1 year. They were followed up at 4-, 8-, and 16-week intervals by a blinded observer and the extent of repigmentation (by visual assessment and computerized image analysis) (Fig 1), color match, patient global assessment score, and complications were noted.

Extent of repigmentation at week 16 by visual assessment was superior in combined ECS and FCS as compared with ECS whether attaining 75% or greater (7/7, 100% vs 4/5, 80%) or 90% or greater repigmentation (7/7, 100% vs 1/5, 20%) (Table I). Similar results were obtained on computerized image analysis: combined ECS and