Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

LB895

Readability, Understandability, and Actionability of Online Patient Education Materials for Sunscreen

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Most adults in the United States obtain health information online. It is crucial that online patient education materials (PEMs) are easily interpreted in order to successfully impact patients' health behaviors. This is especially important for sunscreen PEMs, as proper use is associated with decreased risks of melanoma, non-melanoma skin cancers, and photoaging. American Medical Association recommends that PEMs be written at the sixth grade or lower reading level. We analyzed the readability of PEMs for sunscreen in order to identify opportunities to optimize PEMs. A Google search was performed using "sunscreen patient education." Reading level of PEMs was assessed via 10 validated formulas. Descriptive statistics were performed. Sixteen PEMs were identified. The average reading level was 8.2 (range: 6.4-10.9), which was above the recommended sixth grade reading level. Actionability domains that PEMs scored lowest on were lack of clear steps (n=3, 19%), visual aids (n=2, 13%), and tangible tools such as checklists (n=2, 13%). These results indicate that many online PEMs about sunscreens are not easily interpreted. Sunscreen PEMs should be improved by presenting the information at a lower reading level and taking steps to improve actionability.

LB896

Mogamulizumab multimodality therapy with systemic retinoids, interferon, or extracorporeal photopheresis for advanced cutaneous t-cell lymphoma

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The purpose of this study was to assess the clinical efficacy of mogamulizumab in combination with systemic interferon, systemic retinoids, and/or extracorporeal photopheresis for patients with advanced cutaneous T-cell lymphoma. There are limited treatment options for patients with CTCL refractory to previous systemic therapies. At our center, mogamulizumab has been combined with other immunotherapies for an enhanced synergistic treatment effect in these patients. This was a retrospective case series on 11 patients (6 female; mean age 73 years) with refractory stage IIIB-IVB CTCL at the University of Pennsylvania CTCL Clinic who were treated with a multimodality regimen of mogamulizumab added to systemic interferon and/or retinoids, with or without extracorporeal photopheresis. 9 patients achieved a global response, 4 of which were a complete response. Response rates by compartment were 90% in skin, 91% in blood, and 50% in lymph nodes. At best response, skin involvement and the blood clonal cell count had decreased by an average of 85% and 74%, respectively. 8 patients remain without progression after a median follow-up of 12.2 months. The most common toxicities were mogamulizumab-associated rash (n=6, 55%; grade 3: n=2, 18%), neutropenia (n=6, 55%; grade 3: n=2, 18%), and lymphopenia (n=6, 55%; grade 3: n=3, 27%). The mogamulizumab-associated rash was managed based on severity by either observation, topical steroids, systemic steroids, or holding of mogamulizumab. In conclusion, these findings demonstrate that multimodality therapy with mogamulizumab offers a highly effective treatment approach for patients with refractory CTCL. Further study of combination immunotherapy for CTCL is warranted.

LB897

The risk of COVID-19 infection in patients with alopecia areata

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Alopecia areata (AA) is an immune-mediated non-scarring hair loss disorder associated with a predominant $T_H1$cytokine profile.[1] The risk of individuals with AA contracting COVID-19 is of concern to physicians as well as the entire community affected by AA. We performed a large-retrospective cohort study to determine the risk of contracting COVID-19 in individuals with AA compared to individuals without AA. We queried the Symphony Health-derived data from the COVID-19 Research Database,[2] and individuals with a diagnosis of AA were identified. Subjects with no record of AA diagnosis were randomly placed in the control group in a 4:1 size ratio compared with the AA group and matched by age and sex. PCR-confirmed cases of COVID-19 between January 1, 2020, and September 1, 2021, were identified. The COVID-19 incidence rate ratio (IRR) for adults with AA was 0.72 (95% CI 0.68, 0.76) compared with adults without AA (p-value < 0.001). When controlling for comorbidities previously identified as COVID-19 risk factors, the IRR remained significant but increased to 0.86 (95% CI 0.82, 0.91). Individuals with AA have a slightly decreased risk of contracting COVID-19 compared to individuals without AA. It has been demonstrated that interferon-gamma (IFN- γ) leads to the downregulation of the angiotensin-converting enzyme 2 (ACE2), the SARS-CoV receptor.[3] Thus, it is possible that increased levels of IFN- γ seen in individuals with AA confer some protection against this viral infection. References: 1. Islam N, Leung PS, Huntley AC , Gershwin ME. The autoimmune basis of alopecia areata: a comprehensive review. Autoimmune Rev 2015;14:81-9. 2. COVID-19 Research Database. COVID-19 Research Database Consortium. 3. de Lang A, Osterhaus AD , Haagmans BL. Interferon-gamma and interleukin-4 downregulate expression of the SARS coronavirus receptor ACE2 in Vero E6 cells. Virology 2006;353:474-81.

LB898

Validation of the paindetect questionnaire in hidradenitis suppurativa using quantitative sensory testing

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Hidradenitis suppurativa (HS) is a painful, inflammatory skin condition that causes nociceptive, neuropathic, and nociplastic pain types. The PainDETECT Questionnaire (PD-Q) is a nine-item survey that has been used to assess the likelihood of neuropathic pain character. However, it has not been validated in HS. Quantitative Sensory Testing (QST) is a standardized series of sensory exams considered the gold standard for evaluation of sensory dysfunction including neuropathic pain. Evaluating the performance of the PD-Q in HS may enable clinicians to screen for neuropathic pain in HS and tailor pain management. In this observational, cross-sectional study, 20 participants with HS underwent QST at a control site on the dorsal hand and a painful HS lesion to evaluate pain phenotype including the presence of neuropathic pain. Participants also completed the PD-Q. Participants were of young age (median 36 years, IQR 30-47) and mostly female (75%) and of Black race (55%). 14 participants (70%) were Hurley stage 2, and 5 (20%) were Hurley stage 3. Participants had substantial inflammatory activity per IHS_4 (15, 10-42). 17 HS lesions (85%) were draining tunnels and 3 (15%) were inflammatory nodules. 13 HS lesions (65%) were in the axilla, 6 (30%) were in the groin, and 1 (5%) was on the chest. 10 participants (50%) exhibited neuropathic pain on QST, defined by the presence of dynamic mechanical allodynia at the HS lesion. On the PD-Q, 7 participants (35%) were classified as unlikely having neuropathic pain, 7 (35%) as indeterminate for neuropathic pain, and 6 (30%) as likely having neuropathic pain. QST and the PD-Q demonstrated 75% agreement for pooled likely or indeterminate presence of neuropathic pain versus absence of neuropathic pain with a Cohen's k of 0.5 ($p = 0.01$) demonstrating moderate agreement. Compared to the gold standard of QST, the PD-Q has modest agreement in screening for neuropathic pain character in HS. Because pain phenotype strongly informs management of chronic pain, the PD-Q may be a useful clinical tool for directing management of HS pain.

LB899

Prevalence of comorbidities in patients with acne vulgaris: a claims database analysis

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Background: Given how common acne vulgaris is, some patients may have comorbidities. Understanding the frequency of these comorbidities may be particularly important for optimizing the care of patients. Objective: The assess the prevalence of comorbidities in patients with acne. Methods: The Truven Health MarketScan® Databases were used to identify patients with acne ≥ 12 years old in 2012. The prevalence of several comorbidities (anxiety, depression, dermatitis, lupus, and rosacea) were assessed via ICD codes. Analysis was performed separately for males and females with acne ≥ 12 years old and females with acne ≥ 25 years old. Results: 329,053 patients with acne and 1,316,212 controls were included in the analysis. In males and females ages ≥ 12 with acne, dermatitis was the most common comorbidity of those assessed, followed by anxiety, depression, rosacea, and lupus (12.4%, 7.8%, 7.2%, 2.6%, and 0.3%, respectively). In females ages ≥ 25 with acne, dermatitis was also the most common comorbidity assessed, followed by anxiety, depression, rosacea, and lupus (16.1%, 11.8%, 11.0%, 5.7%, and 0.6%, respectively). Conclusion: Dermatitis was the most common comorbidity in both groups analyzed and also the comorbidity with the greatest difference in prevalence from controls. Anxiety and depression were also more prevalent in acne patients than in controls. Psychiatric comorbidities not only affect patient well-being but are a strong predictor of poor adherence to treatment and a barrier to improving treatment outcomes. Rosacea and lupus were more prevalent in acne patients versus controls and cutaneous comorbidities are associated with worse quality of life. Both cutaneous and non-cutaneous comorbidities frequently affect acne patients and incorporating them into discussions of care may improve treatment outcomes and patient satisfaction.

LB900

Role of p38β in cutaneous T cell lymphoma

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Cutaneous T cell lymphoma (CTCL) is an incurable cancer; understanding its underlying molecular mechanisms may unlock a cure. In patient samples of CTCL, we observed a significant increase in gene expression of p38β while that of p38α decreased, compared to normal healthy $CD4^+$ T cells. This prompted us to further dissect the role of p38β in CTCL to inform the application of small molecule inhibitors that specifically target p38β. Current well-developed small molecule p38 inhibitors target both p38α as well as p38β, as they share ~80% structural similarity. However, multiple clinical trials have shown adverse effects and development of drug resistance when patients with cancer are treated with potent p38 inhibitors alone. Such side effects likely occur because p38α is an essential protein in many cell types; indeed, p38α gene knock-out mice exhibit embryonic lethality. Therefore, any prolonged treatment using p38α inhibition may cause adverse effects. Using Hut78 CTCL cells in which we silenced p38β using lentiviral siRNA, we tested for possible mechanisms of drug resistance that could explain why patients who participated in p38α/β inhibitor clinical trials experience adverse effects. Gene silencing of p38β in Hut78 cells did not decrease cell proliferation; instead, proliferation slightly increased compared to that of WT cells. This aligned with increased IL-17 RA and p38γ which is a driver for cell proliferation in Hut78 cells. Our hypothesis is that p38β-depleted CTCL cells increase survival by elevating the MAPK12-NFAT-IL17 signaling pathway axis, which increases proliferation and propagandas inflammation in the surrounding regions resulting in drug resistance and adverse effects. We used confocal immuno-fluorescence microscopy analyses of p38β-depleted Hut78 cells to reveal a novel molecular mechanism, in which depleting p38β offset cytoskeleton formation in the cytosol. This suggests p38β is important for maintaining the shape or frame of CTCL cells, and may explain why CTCL, a malignant T cell, infiltrate skin, from which novel revenues of drug development may be invented that are complementary to p38β inhibition.