The association of patient income levels and prescribing patterns of psoriasis therapies in the medical expenditure panel survey

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Biologic therapy is associated with better outcomes for moderate to severe psoriasis compared to systemic or topical therapies. Do prescription patterns in a national expenditure database reflect financial assistance and entry in optimal care delivery? To determine the degree to which adults below the federal poverty level (FPL) are prescribed biologics, we performed a retrospective cross-sectional study using pooled data from the Medical Expenditure Panel Survey (MEPS). A prescription was defined by a biologic Medication Exclusion code linked to a psoriasis ICD code. Demographics and biologic prescriptions were compared between psoriasis patients below or above at or above the FPL using weighted-subject designs. We identified 1,437,792 yearly-weighted patients with active psoriasis (1,336 total unweighted) between 2007 and 2018, of whom 12,392 were below the FPL (16.6% total unweighted). Psoriasis patients below the FPL were less likely to be prescribed biologics for psoriasis than patients at or above the FPL (5% vs. 12%, p<0.01). In addition, they were more likely to be black (p<0.002), be formerly or never married (p=0.001), have public or no insurance (p<0.001), have no degree (p=0.02), and self-report poor/fair physical or mental health (p<0.001). Finally, psoriasis patients below the FPL taking biologics had lower median biologic medication expenditures per person than psoriasis patients at or above the FPL (taking biologics ($6,511 vs. $12,152, p<0.003). Biologics are not prescribed equally among all socioeconomic cohorts, notably across racial and socioeconomic strata such as black patients and patients with no degree. Further studies are needed to identify the financial assistance programs that best address the persistent hurdles to equity in the delivery of holistic care in the United States.

Factors in topical steroid selection: A qualitative study

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Rising topical steroid (TS) costs place increasing financial burdens on patients. In this study, we evaluate factors dermatologists consider when choosing a prescription TS. We conducted a qualitative study using semi-structured interviews (6/2020-11/2020) of board-certified dermatologists until thematic saturation was reached. Each interview was independently coded by 2 coders. Code frequency and interrater reliability (IRR) were determined using NVIVO software. 16 dermatologists were interviewed and divided evenly among each practice setting (academic, non-academic, and private practices). IRR ranged from k=0.86 to k=0.98, indicating excellent agreement. The most important physician factor when choosing a steroid was patient access to medication (63%). Most (81%) thought about cost regularly with 62% of patients being unable to afford the prescrip- tion costs. All physicians patients unable to pick up their prescription due to cost. Physicians reported not knowing medication costs due to variability of insurance coverage (94%), fluctuating drug prices (75%) and lack of transparency (75%), with 75% of physicians learning about drug costs from patients during follow up. 87.5% of physicians were willing to use a system in which TS are automatically substituted for a cheaper alternative of the same vehicle and class. Physicians reported removing barriers to knowledge of drug costs may result in greater ability to pre- scribe affordable drugs (75%), less patient costs (64%) and improved patient care (43%). Drug costs are a major barrier to access for patients, a problem exacerbated lack of cost trans- parency before placing a prescription. In turn, physicians rely on patients for feedback on prescription costs. Scarlet access to drug cost information may prevent patients from receiving appropriate and timely treatment. Creative solutions are needed to improve price trans- parency and assist physicians in prescribing affordable medications.

Sociodemographic factors associated with scabies in the inpatient setting

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Background: Scabies is a highly contagious skin infection most often spread by skin-to-skin contact. Information regarding the hospital burden of scabies is limited. Our aim was to investigate sociodemographic factors associated with presentation of scabies in the inpatient setting. Methods: We performed a retrospective analysis of the National Inpatient Sample from 2012 to 2016. Our primary outcome was either a primary or secondary diagnosis of scabies at any point during the inpatient admission (ICD-9-CM 133.0 and ICD-10-CM B86). Exposures were age, sex, race/ethnicity, insurance type, housing status, and median household income by zip code. Generalized estimating equations were used to account for endemic clustering. Multivariable analysis was performed with SAS version 9.4. Results: Among 13,010,000 inpatient stays, 293,100 (2.28%) patients were hospitalized for scabies. Patients below the federal poverty level (FPL) were 2.58 times more likely to be hospitalized for scabies than patients at or above the FPL (OR 2.58, 95%CI 2.43-2.77). Patients below the FPL were 1.66 times more likely to be screened for scabies and 1.71 times more likely to be diagnosed with scabies. Conclusions: We identified several sociodemographic factors associated with an increased likelihood of scabies diagnosis in the inpatient setting. These findings may assist in developing targeted interventions towards decreasing the incidence and burden of scabies in United States hospital systems.

Boundary-aware convolutional neural network for skin lesion segmentation in clinical images

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Skin lesion segmentation is a key step in automatic skin lesion analysis. In recent years, the methods based on convolutional neural networks (CNNs) have achieved great success in automatic skin lesion segmentation, but they still face some problems, such as poor generalization performance, blurry boundary and so on. In addition, most of these methods mainly focus on dermoscopy images, and lack of the attention to clinical images. In this paper, we propose a novel boundary-aware convolutional neural network (BACNN) for skin lesion segmentation in clinical images. Compared with the existing skin lesion segmentation methods that only have the segmentation branch, we create an additional boundary prediction branch and use the boundary prediction map to assist the segmentation task to obtain more refined segmentation results. To validate the effectiveness of our method, we have constructed a skin lesion segmentation dataset containing 1768 clinical images of six skin diseases (including basal cell carcinoma, melanoma, seborrheic keratosis, psoriasis, squamous cell carcinoma and Bowen’s disease). These clinical images are collected from Xiangya Hospital of Central South University, and the segmentation truth of each image is labeled and verified by three expert dermatologists. On this dataset, our method can achieve the Dice coefficient and Jaccard index of 92.68% and 86.88%, respectively, which is higher than the existing skin lesion segmentation methods. We hope that our method can improve the overall performance of the existing clinical image analysis system and be verified in a wider range of clinical practice.

Prevalence of non-validated disease scores in dermatology clinical trials

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The nature of dermatologic disease sometimes necessitates non-interval or measured outcomes to address the complexity, and often multifactorial, impact of disease presentation and patient impact, clinical scores are often used. These can pose difficulties as varying outcomes from clinical trials make later comparisons difficult and can hinder systemic reviews that form the backbone of clinical guidelines. Thus, ideally, a well-validated and generally-used outcome is superior to a trial-specific or institution-specific score. To quantify the prevalence of non-validated score use, we identified all clinical trials published in BJD, JAMA Dermatology, JAAD, JDI and JD from 2015-2019. Results are depicted in Figure 1. 265/268 (99.4%) used scores as their primary outcome (58.1%). Most were validated (n=111, 72.1%), but 18.9% were non-validated (n=29) and 7 used both (4.55%). Logistic regression demonstrated no statistically significant change in non-validated score use over time, nor with funding source or use of a biostatistician. The majority of the non-validated scores were used in rare diseases such as Sturge-Weber syndrome, but for 13/29 trials (44.8%) (psoriasis, actinic keratosis, scarring, urticaria, and vitiligo), existing validated scores had been previously published. These demonstrate an area for improvement. Where possible investigators should use validated score outcomes or include validated scores for comparison if testing a non-validated score. Reviewers and editors should question non-validated scores, especially for conditions where validated, commonly-used, scores are available.

The impact of atopic dermatitis on caregivers of patients of all ages

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Atopic dermatitis (AD) carries a substantial burden. Prior research has focused on patients and caregivers of children separately; therefore, we sought to examine the relative impact on patients and caregivers of patients with AD of all ages. Data are from 1,508 respondents to the ‘more than Skin Deep’ survey fielded online as part of the US FDA’s patient-focused drug development initiative. Among 599 caregiver respondents, 43% cared for young children ages 0-5, 47% cared for children ages 6-17, and 10% cared for adults. The primary outcome, a 5-category measure of overall impact, was similar among patients and caregivers (51% vs 49%, p=0.436), and the impact was more severe among caregivers of adults as compared to caregivers of children (73% vs 51% of respondents reported high or significant impact, p<0.008). AD severity, mood symptoms, symptom control, topical and adjunctive treatment usage, and time spent managing AD were independently predictive of overall impact in a multivariate ordinal regression model. Among domain-specific impact scores, sleep, family responsibilities, family dynamics, and life decisions were most impacted for caregivers of all ages; diet was more impacted for caregivers of children and activities for caregivers of adults. In conclusion, AD is impactful for both patients and caregivers, including caregivers of adults, across multiple life domains.