Health information technology utilization among skin cancer patients

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Background: Health information technology (HIT) refers to the use of online tools to perform tasks related to one’s medical care. HIT utilization is linked to improved patient outcomes, however, relatively little is known regarding HIT utilization in the context of skin cancer. Methods: We conducted a retrospective cross-sectional review of the National Health Interview Survey from 2011-2018. With summary statistics and multivariable logistic regression, we analyzed associations between sociodemographic characteristics and HIT utilization among patients reporting a skin cancer diagnosis. The primary outcome was whether patients scheduled healthcare appointments online. Secondary outcomes were whether patients looked up health information online, communicated with healthcare providers by e-mail, and filled prescriptions electronically. Results: From 2011-2018, the proportion of patients who scheduled healthcare appointments online increased from 4.16% to 21.35%. The proportion of patients who communicated with a healthcare provider by e-mail, and filled prescriptions electronically increased from 48.89% to 56.21%, 6.32% to 26.01%, and 12.05% to 17.86%, respectively. Logistic regression revealed that uninsured skin cancer patients were less likely to schedule appointments online, communicate with providers by email, or fill prescriptions electronically (p<0.05 for all). Conclusions: There are substantial differences in HIT utilization of skin cancer patients across sociodemographic lines. Interventions aimed at increasing HIT utilization among disadvantaged groups may reduce health disparities related to skin cancer.

Association of occupational exposures with disease manifestations in systemic sclerosis

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Systemic sclerosis (SSc) is thought to be induced by an environmental trigger in a genetically predisposed host and leads to significant mortality from internal organ involvement. In this study, we compare the SSc disease features for different occupational exposures of SSc patients in Canada. Data on 1545 SSc patients was extracted from the Canadian Scleroderma Research Group cohort over the years 2003-2019. Gender, occupational exposure history, symptom severity, antibody profile and mortality data were collected. Logistic regression models were used to determine clinical characteristics associated with each occupational exposure. Occupational exposures were reported in 494 patients, predominantly to organic solvents (307), industrial fumes (139), silica (101), heavy metals (93), asbestos (87) and epoxy resins (76). Certain exposures were more prevalent in male patients than non-occupational SSc (1:1.5 vs 1:6 male to female ratio). Silica exposure was associated with higher prevalence of diffuse SSc (OR 1.19, CI 1.08-1.32) and increased mortality (OR 1.15, CI 1.06-1.25). Exposure to organic solvents was associated with renal disease (OR 1.03, CI 1.01-1.08) and asbestos with increased mortality (OR 1.16, CI 1.06-1.26). In addition, industrial fumes and heavy metal exposure were associated with higher prevalence of intestinal lung disease (ILD), renal disease and mortality. Epoxy exposure was associated with ILD, renal disease, diffuse SSc and anti-SSA/SSB antibodies positivity. Consistently, lower frequency of anti-centromere antibody was noticed in patients exposed to silica, heavy metal or industrial fumes. This study revealed that SSc patients with previous occupational exposure to organic solvents, industrial fumes, silica, heavy metals, asbestos and epoxy resins are predominately males and exhibit more severe disease phenotype and/or mortality. While effective workplace protection strategies are needed, it remains imperative to obtain a detailed occupational history in SSc patients to focus on secondary prevention and risk education.

Statistical study, of adverse drug reactions, of patients with melanoma, treated with biological drugs

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The aim of the work was to analyze ADRs from more innovative drugs used in oncological immunotherapy for the treatment of melanoma, in particular Nivolumab and Pembrolizumab. The ADRs were compared, detected by the analysis of medical records, and reported to the Pharmacy of the Hospital “Santa Maria alle Scotte” of University of Siena in the period January 2019-October 2020. Furthermore, the ADRs extracted from the Italian National Pharmacovigilance Network have been reported. The study population consisted of 263 patients, where 43 ADRs were reported, of which 37.21% is represented by ADRs in patients with melanoma. Melanoma patients treated with Nivolumab and Pembrolizumab globally present to 20% of treated patients (of which are treated with Nivolumab and 28% with Pembrolizumab). In patients treated for melanoma, there is a general prevalence of the male subject (66.14%), in line with literary data; in particular, 70% of melanoma patients treated with pembrolizumab and 68% of patients treated with nivolumab. From the analysis of all treatments carried out for melanoma, 32.55% ADR was detected with Nivolumab and Pembrolizumab. By re-elaborating the ADRs data, it appears, therefore, that the serious reactions are 33.33% for Pembrolizumab and 62.50% for Nivolumab. According to the above, we further better understand the resent ADRs trends through the control of the database lists at the time of the reporting of ADRs, in order to avoid differences in the reporting of similar ADRs, aimed at improving good clinical practice, of strategic drugs, for the management of serious pathologies such as melanoma.

Patients’ attitudes towards active surveillance for basal cell carcinoma

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Basal cell carcinoma (BCC) is the most common cancer in the US. 30-50% of BCCs may be amenable to treatment, but size. Most BCCs are managed surgically regardless of life-expectancy. More than 40% of patients with limited life-expectancy die within 5-years of their BCC treatment, rarely from skin cancer, and likely do not live long enough to benefit from their treatment. Active surveillance has been proposed for some of these patients. The objectives of the study were to determine patients’ attitudes and concerns regarding active surveillance, and to evaluate the effect of an educational video on patients’ attitudes and concerns. We conducted a pre/post survey study of 213 patients in the dermatology clinic at the Minneapolis VA Medical Center from August 2019 to October 2020. An educational video on BCC was created, and reviewed/accepted by the Minneapolis VA IRB to ensure educational rather than coercive content. The primary study outcomes were change in the number of patients with concerns regarding BCC active surveillance, change in specific concerns, and the percentage of patients who would choose active surveillance pre- and post-video. Significantly less respondents were concerned with their doctor monitoring their BCC post- versus pre-video (61% vs 48%, p = 0.0065). Most respondents felt comfortable, very comfortable, or neutral in participating in a study for active surveillance, and no significant differences found between pre- and post-video (73% vs 75%; p = 0.5517). Respondents were most concerned with tumor growth (54%) and metastases (40%). Post-video, significantly more patients were concerned with frequent doctor visits (0% vs 9%: p <0.0001) and making the wrong decision (15% vs 26%; p = 0.0079). No significant difference in comfort level with BCC active surveillance was noted between older (>75) versus younger (<75) respondents. Majority of patients are comfortable with active surveillance of BCC. Providing education on BCCs may alleviate patients’ concerns regarding active surveillance.

Multimodal skin lesion classification in dermoscopy and clinical images using a hierarchical attention fusion network

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Recently, convolutional neural networks (CNNs) have achieved remarkable success in skin lesion classification. However, most existing methods are limited to relying only on dermoscopy or clinical images, with the exception of a few multimodal methods that simply integrate the extracted clinical and dermoscopy image features in the later stages of the network. The existing methods cannot learn good representations from the multimodal image pairs. In this paper, we propose a novel hierarchical attention fusion network for the multimodal skin lesion classification in dermoscopy and clinical images. Compared to existing multimodal CNNs, our method has an attention fusion block to learn the refined single-modality features through the attention information in the complementary imaging modalities and integrate the extracted single-modality features hierarchically in each stage of the network. To validate the effectiveness of our method, we have constructed a skin lesion dataset containing 1907 sets of multimodal image pairs (dermoscopy and clinical images). This dataset is collected from Xiangya Hospital of Central South University in recent 10 years, covering five common skin diseases: basal cell carcinoma, melanoma, nevus, squamous cell carcinoma, and seborrheic keratosis. On the collected dataset, our method can achieve the average accuracy of 81.2%, while the average accuracy of the simple late-fusion based multimodal method is only 77.3%. The experimental results demonstrate that our method can achieve more accurate classification results than the simple late-fusion based multimodal method. We believe that our method will contribute to the establishment of the multimodal skin lesion diagnostic system, and assist dermatologists to diagnose in the practical clinical workflow.