**Introduction**

Skin cancer is the most common form of cancer in the United States and worldwide. However, the NIH funded Surveillance, Epidemiology, and End Results (SEER) does not currently track the incidence or prevalence of skin cancers outside of melanoma—making it difficult to accurately characterize the epidemiology.

The current primary screening modality, the total body skin exam (TBSE), involves a dermatologist examining the entire body surface area to identify concerning lesions. The current diagnostic modality is a biopsy. Current treatment modality varies depending on the type, location, and aggressiveness of the cancer. Treatment for skin cancer, including melanoma, can be curative if lesions are detected early. Therefore, effective screening has the potential to impact morbidity and mortality.

While routine screening may improve outcomes for specific demographics, The United States Preventive Services Task Force (USPSTF) currently gives a grade I recommendation summary which states: “The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of visual skin examination by a clinician to screen for skin cancer in adults.”

Further research is necessary to determine what age groups, with what risk factors, might benefit from routine TBSE in the United States.

**Methods**

A retrospective chart review was conducted for all patients 18 years of age or older that visited Jefferson Dermatology Associates and received a TBSE from January 1, 2017 to December 31, 2017.

Data was collected in RedCap. Patient data was extracted from EPIC, and SPSS was employed for statistical analysis.

Descriptive statistics were generated for all patients with TBSE, and the data analyzed to assess statistically significant risk factors for the diagnosis of Melanoma or Non Melanoma Skin Cancer (NMSC).

The number-needed-to-screen to diagnose a case of skin cancer was calculated and compared by age in decades. A Pearson correlation test was run to confirm the significance of the correlation between age and number-needed-to-screen to diagnose a case of skin cancer.

**Results**

The demographics of the patients included in the study are outlined in Figure 1. 3,146 patients received a TBSE. 180 (5.7%) were diagnosed with skin cancer based on a biopsy.

More women were routinely screened than men. However, more men were diagnosed with skin cancer via biopsy, (115 males and 65 females.)

Graph 1 depicts the number of individuals screened from each decade. 172 individuals were diagnosed with NMSC. 8 individuals were diagnosed with Melanoma. The decade that was screened the most (60s) also had the most identified skin cancers.

There was a difference in the average age of overall patients and patients with a TBSE finding skin cancer, with the average ages of 53 and 66, respectively. The significance of this difference was confirmed by an independent samples t-test (p < .001.)

The number-needed-to-screen to diagnose a case of skin cancer was calculated and can be seen in Figure 2. There was a decline in the number of TBSE needed to find one case of skin cancer as age increased.

A Pearson correlation test was conducted and found to be statistically significant at -7.24 (p<.042). This indicates a statistically significant negative linear relationship between age and the number-needed-to-screen with TBSE to find a skin cancer.

**Discussion**

The statistically significant difference in average ages between all patients who received a TBSE and patients in which the TBSE identified a skin cancer indicates that age may serve as an appropriate risk factor to use in determining guidelines for whom should be routinely screened for skin cancers. This finding is reinforced by the inverse correlation between patient age and the number-needed-to-screen with TBSE to identify a case of skin cancer. Routinely screening patients in their sixth or seventh decade of life may be an appropriate use of resources. TBSEs in younger populations are not likely to yield positive skin cancer findings.

However, melanoma, the type of skin cancer most associated with mortality, did have an outlier. 1 patient was diagnosed in their 20s. Further analysis should be conducted to determine what risk factors (genetic, UV exposure, etc) that individual might have to better understand if there is a viable marker that may help identify young people at risk for melanoma.

Additionally, the number of skin cancers detected were low. Only 5.7% of TBSEs detected any kind of skin cancer and only 0.25% detected melanoma. A cost-benefit analysis should be undertaken to better understand the public health implications of routine screening on an already burdened healthcare system. Skin cancer screening guidelines will have to balance the value of early diagnosis and recognition with societal resource demands and the risk of harmful and/or unnecessary care.

As the number of skin cancers detected were low, the study could be repeated with Jefferson charts from EPIC in other years.

Finally, one glaring shortcoming of the study was the lack of diverse patient population. 90.5% of the patients that received a TBSE were white or Caucasian. This is not generalizable to the US population; and would impede the USPSTF from making a recommendation. Additional research should be conducted that provides TBSE to patient populations more representative of current US population.

**Conclusions**

There is a statistically significant correlation between the age of patients and the number-needed-to-screen to diagnose a case of skin cancer. Screening patients in their 50s yields 1 skin cancer diagnosis for 22 TBSEs.

It may be beneficial for Americans over 50 to obtain routine TBSEs. This data can contribute to the growing body of evidence needed for the USPSTF to provide skin cancer screening guidelines.

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