

Increased Skin Cancer Rates Under 40: Lessons for Patients and Dermatologists

A rising incidence of nonmelanoma skin cancer among men and women below age 40 demonstrates a need for good prevention and detection strategies.

By Jonathan Wolfe, MD

Recent research suggests that the rate of non-melanoma skin cancer is increasing among men and women younger than 40. Specifically, data showing the rate of basal cell carcinoma (BCC) has significantly increased among women in this age group has garnered attention over the past few weeks. Hopefully, identification of these trends and a subsequent emphasis on patient education and early detection will, in the long-term, prove beneficial to patient health. In the meantime, the data leave many wondering whether we're facing an epidemic of skin cancer and, if so, how to best combat it.

Taking a closer look at the study and its findings as well as some other recent incidence data allows dermatologists a better understanding of the issues and offers some indication of appropriate actions to take.

Data-at-a-Glance

In a study published last month in *JAMA*,¹ Christenson et al reported their findings about the incidence of non-melanoma skin cancer among white men and women younger than 40 in Olmsted County, Minnesota, southeast of the Twin Cities. Diagnosis data from 1976 thru 2003 were pulled from the Rochester Epidemiology Project (including data from the Mayo Clinic, regional hospitals, and nursing homes).

Analysis included only diagnoses confirmed by an official pathology report and excluded: patients with a genetic disease that predisposes to accel-

erated BCC and/or squamous cell carcinoma (SCC) development; cases of SCC of the anogenital region; patients with congenital lesions that predispose to development of BCC; and previous treatment with radiation at the site of tumor occurrence.

Analysis revealed a general increase in incidence of BCC in the studied population over 27 years. While the rate among men remained fairly constant, there was a significant increase in BCC among women—the incidence of BCC increased steadily over time among women 36 to 39 years old.

Additionally, while the most common location for BCC was the head and neck region, the proportion of all tumors located on the torso increased from under 20 percent (18.9 percent) from 1976 to 1979 to 50 percent from 2000 to 2003; women were more likely than men to have tumors of the torso. Men had a median BCC size of 7mm, while women had a median tumor size of 6mm.

For SCC, the incidence increased slightly and at a similar rate for men and women over the studied period. Among men age 36 to 39, though, the incidence of SCC was twice that in women of the same age. Maximum tumor size was not significantly different for men and women, nor was location of tumors; most occurred on the head and neck.

Increased Incidence or Detection?

The authors propose several possible

rationales for the increased incidence of BCC and SCC in individuals under age 40. Increased public awareness and therefore improved detection/increased diagnosis could play a role.

Another study published last month,² proposed a similar rationale for the increased reported incidence of melanoma in individuals aged 65 and older. That study reports that skin biopsy rates increased substantially over a 15-year period in nine geographic study locations, leading to increased detection of melanoma. Since the increase is mostly in incidence of early stage disease and the reported mortality for melanoma has remained stable, the authors posit that the growing reported incidence of melanoma reflects improved detection rather than a significant actual increase in disease.

Certainly, the increase in detection of both melanoma and nonmelanoma skin cancers coupled with relatively static mortality rates raises interesting questions. Regardless of the reliability of current incidence data, based on recent research we may logically acknowledge a current era of earlier detection and increased diagnosis.

Difficulties in study design, data collection, and—importantly—statistical analysis will continue to hamper efforts to authoritatively define skin cancer incidences. The method of detection (screening versus diagnosis based on signs and symptoms) may produce statistical anomalies. Consider lead-time biases, which could contribute to discor-

dance between increased detection rates and unchanging mortality rates. Lead time bias is a mis-estimation of survival among screen-detected patients. Screened patients appear to have longer survival because time between diagnosis and death has increased. However, no real increase in survival from diagnosis has occurred.

Interestingly enough, only recently have mortality rates for melanoma begun to improve minimally. Intensive screening for both melanoma and non-melanoma skin cancer has been active for almost 15 years now. Yet there have been high profile articles in both the lay press and medical literature suggesting that we are in an “epidemic” of skin cancer. More than likely, we are witnessing some kind of statistical anomaly.

It’s also important to note that screening may also detect a disproportionate number of slowly growing tumors. This detection of less aggressive disease affects apparent survival rates, since more aggressive disease progresses rapidly and is present for a shorter amount of time (“Length time bias”). Detecting slowly growing lesions with long preclinical detectable periods may falsely appear to improve survival.

However, there is no way to differentiate those tumors that are rapidly growing from those that move slowly. Thus, we are forced to move ahead with active “screening,” particularly for high-risk individuals, until new technology may help distinguish between tumor growth patterns. Since we are in an era where active participation in one’s health care has become the norm, potentially, the data revealing an increase in skin cancer is related to one of the statistical phenomena.

Identifying Causes

Any number of factors may contribute to early detection, especially improved patient education and subsequent patient demand for skin cancer screen-

ings or evaluation of suspicious or symptomatic lesions.

While the current study may not settle the controversy over incidence of SCC and BCC in younger patients, it confirms that these patients can be at risk. Coupled with the fact that melanoma is reportedly the most common cancer in young women aged 25 to 29, and second only to breast cancer in women aged 30 to 34 (according to the Skin Cancer Foundation), the need for screening of high-risk younger patients is even more obvious.

In most locations, the primary care physician would make the determination that a patient is high-risk and in need of evaluation by a dermatologist. Therefore, it is critical that general practitioners be comfortable enough with the subject matter to screen. Dermatologists continue to play a role in reaching out to and working with GPs in this regard.

Though controversy surrounds the role of screening for high-risk individuals, it seems intuitive that the whole process of identifying and appropriately dealing with high-risk individuals begins at the primary care level. Per their moniker, GPs are the gate-keepers that will identify at-risk patients and refer them to dermatologists who specialize in diagnosis and treatment of skin cancers.

The authors identify factors that might possibly contribute to the increased incidence of SCC and BCC in those under age 40. Women between the ages of 20 and 40 who have BCC were more likely to smoke or have a past history of smoking than women without a history of BCC.


Though the current data did not track sunbed use by patients, the authors point out that numerous studies show that use of tanning beds has increased nationally and locally. Given that tanningbed use is linked to increased risk of nonmelanoma skin cancer, they propose that sunbed use may contribute to the rising incidence of SCC and BCC in

individuals under 40. The increasing incidence of tumors on the torso supports an increase in tanning with natural sunlight or tanning units.

This observation highlights the importance of primary prevention. In fact, the importance of primary prevention strategies may be the real take-home point of this study. Dermatologists must continue their efforts to change people’s habits and beliefs to reflect more healthy behaviors. Importantly, the study may support our efforts to convince younger patients that they are at risk if they do not practice appropriate sun safety. Knowing that melanoma is the number one cancer in women age 25 to 29 and that there’s a growing incidence of SCC and BCC in those under 40 can help young patients realize, “It could happen to me, too.”

Our educational efforts must be strong and consistent, as tanning salons may attempt to misinterpret or discredit the data.

Prevention and Detection are Key

Despite dermatologists’ and other health officials’ best efforts to educate patients about sun safety and promote sun protection, rising incidences of skin cancer should not entirely surprise us. The past 15 years (and more) have been a time of relative prosperity for the majority of Americans. With increasing affluence, individuals have more time and money to devote to outdoor activities, leisure, and vacations. The ultimate impact of these behaviors on development of skin cancers may not be obvious for years. Therefore, anything we can do to stem the tide of skin cancer development or progression is critical. 

1. Christenson IJ, Borrowman TA, Vachon CM, et al. Incidence of Basal Cell and Squamous Cell Carcinomas in a Population Younger than 40 Years. *JAMA* 2005;294: 681-690.

Welch HG, Woloshin S, Schwartz IM. Skin biopsy rates and incidence of melanoma: population based ecological study. *BMJ* 2005.