

Melanoma Statistics and Risk Factors

Cancer of the skin is by far the most common of all cancers. The three major types of skin cancer are basal cell carcinoma, squamous cell carcinoma and melanoma. Melanoma accounts for only about 1% of skin cancers but causes a large majority of skin cancer deaths [1,2]. Cutaneous melanoma is a malignant neoplasm of the melanocytes. Melanocytes are pigment-producing cells that are found in the basal layer of the epidermis.

Melanoma Statistics

Melanoma rates in the United States doubled in three decades from 1982 to 2011 [3]. The National Cancer Institute reported that melanoma rates in the United States tripled in four decades between 1975 and 2014 [4]. From 1970 to 2009, the incidence of melanoma increased eight-fold among young women and four-fold among young men. According to the American Cancer Society, one person dies of melanoma every hour in the U.S.A. [2].

Melanoma is more than 20 times more common in Caucasians than in African Americans. Overall, the lifetime risk of getting melanoma is about 2.6% (1 in 38) for caucasian, 0.1% (1 in 1,000) for african americans, and 0.58% (1 in 172) for Hispanics [1]. Among the Caucasian population, the incidence of melanoma has increased by 3 to 6 percent over the last few decades [5], making it one of the fastest growing cancers worldwide [6].

Reasons for Rising Melanoma Rates

Potential reasons for the rising melanoma rates in the last few decades include the depleting ozone layer through climate change, the aging population, and an increase in tanning bed usage. Another possible factor could be the fact that sunscreens, until more recently, have only focused on ultraviolet B (UVB) rays, which only account for 5% of the UV radiation that reaches the earth. However, it is UVA rays that account for the other 95%. UVA radiation is more cytotoxic, generates more DNA damaging free radicals, and is able to suppress the immune system [7].

The five-year survival rate for people whose melanoma is detected and treated before it spreads to the lymph nodes is 99 percent [8,9]. Five-year survival rates for regional and distant stage melanomas are 63 percent and 20 percent, respectively [8,9]. Therefore, prevention and early detection is key.

Risk Factors for Melanoma

Studies have shown that a major risk factor for melanoma development is UV radiation exposure, whether from natural or artificial sunlight (such as tanning beds). A UK study found that about 86 percent of melanomas can be attributed to exposure to UV radiation from the sun [10]. Individuals who have used tanning beds 10 or more times in their lives have a 34 percent increased risk of developing melanoma compared with those who have never used tanning beds [11]. People who first use a tanning bed before age 35 increase their risk for melanoma by 75 percent [12]. Even one blistering sunburn during childhood or adolescence can nearly double a person's chance of developing melanoma [13]. Experiencing five or more blistering sunburns between ages 15 and 20 increases one's melanoma risk by 80 percent [14].

Like most cancers, melanoma is more likely to occur in older people, although it is also found in younger people. Melanoma is more common

among individuals with a fair complexion, blue or green eyes and light-coloured hair. There are more new cases among whites than any other racial or ethnic group. Other important risk factors are the number of melanocytic nevi. A nevus is a mole or birthmark. They often begin to appear in childhood and adolescence. Atypical or excessive amounts of nevi acquired later in life are strong risk factors for melanoma development [15]. Most people have between 10 and 50 moles [16]. Anyone who has more than 100 moles is at greater risk for melanoma [17]. Family history is another risk factor for melanoma. Your risk of melanoma is higher if one or more of your first-degree relatives (parents, siblings or children) has had melanoma. Approximately 10% of all people with melanoma have a family history of the disease [1]. A patient with a personal history of melanoma is at a greater risk for subsequent melanoma. Approximately 1 to 8 percent of patients with a prior history of melanoma will develop subsequent primary melanomas [18].

If nevi begin to change in shape, color, or texture then it becomes a strong indicator for malignant melanoma. In one study, about 81% of melanoma patients observed a changing nevus in the location of the malignant lesion [19]. Clinicians frequently recommend that their patients assess their lesions based on the "ABCDE rule" that is meant to indicate A: asymmetry, B: irregular border, C: color variation, D: diameter >6 mm, and E: elevated surface and to see their physician if they notice any of these changes [20,21].

The extent to which UV exposure effects the development of melanoma depends on the area of the body. For example, melanoma on the trunk and legs has been linked to frequent sunburns (especially in childhood). Compared this with melanomas on the palms of the hands, soles of the feet, under the nails, or on internal surfaces such as the mouth and vagina, where there is little or no sun exposure [1]. Melanomas in blacks, Asians, Filipinos, Indonesians and native Hawaiians most often occur on non-exposed skin with less pigment, with up to 60 to 75 percent of tumors arising on the palms, soles, mucous membranes and nail regions [22].

Only 20 to 30 percent of melanomas are found in existing moles, while 70 to 80 percent arise on normal skin [23].

Ways to Decrease Melanoma Risk

There is no sure way to prevent melanoma. Some risk factors such as age, gender, race, and family history can't be controlled. But there are things you can do that could lower your risk of developing melanoma and other skin cancers: limit sun exposure, practice sun safety, wear sunscreen, avoid tanning beds, and watch for any abnormal moles or skin growths.

UV radiation is a proven human carcinogen [24]. Regular daily use of sunscreen with an SPF 15 or higher reduces the risk of developing melanoma by 50 percent [25].

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