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Review

Trends, Habits and Attitudes towards Suntanning

Željana Bolanča[1], Ivan Bolanča[2], Marija Buljan[1], Iva Blajić[1], Jasna Penavić Zeljko[3] and Mirna Šitum[1]

[1] University Department of Dermatovenerology, University Hospital »Sestre milosrdnice«, Zagreb, Croatia
[2] University Department of Obstetrics and Gynecology, University Hospital »Sestre milosrdnice«, Zagreb, Croatia
[3] Division of Dermatology and Venerology, University Hospital »Mostar«, Mostar, Bosnia and Hercegovina

A B S T R A C T

Epidemiological studies suggest a relationship between suntanning habits and high risk of malignant melanoma (MM). The incidence of MM is increased during the last 40 years. Sun exposure is highly prevalent in all age groups, especially among young and it is influenced by certain believes and attitudes towards suntanning and stimulated by peer pressure and aesthetic references. What is the cause of higher incidence of MM? Is it only trend and attitudes towards suntanning? A prototype of a young female of 21st century is attractive, slim, with bronze complexion, dresses in the bathing suit, whereas the lady of the 19th is pale, dressed in white dress and with hat or sunshade that protects face and hair from the sun. When did social mores and medical knowledge about sun exposure change? A critical interplay occurred between the end of 19th century and the start of the 20th century with significant success of phototherapy and the growing popularity of sunbathing which reflected number of social changes. During the same time of invigoration of sun exposure, appeared the first reports about correlation between sunlight and skin cancer, but without significant repercussion on medical profession and therefore without knowledge of the public. The 1920s and 1930s were highlighted with the great discovery that ultraviolet wavelengths less than 313 nm played the role in vitamin D synthesis which prevents rickets. Numerous other medical benefits were soon attributed to the sunlight. Finally, the cancerogenity of UV light came to attention when scientist succeeded in induction of skin cancer in rodents after UV light exposure. The etiology of sunlight in development of skin cancer was mentioned in scientific articles and public magazines in 1940s and 1950s. Over the decades the message that sunlight exposure leads to increased risk of skin cancer, reach the public. But despite the knowledge, even at present people believe that tan person looks healthier. Additional and continuous educational campaigns are needed for changing people's behavior.

Key words: *trends, suntanning, UV wavelengths, artificial UV wavelengths, sunscreens*

Epidemiological studies suggest a relationship between suntanning habits and high risk of malignant melanoma[1,2]. The influence of UV radiation in the development of melanoma is extensively studied and mechanisms are well known[3]. The incidence of malignant melanoma is increased during the last forty years[4,5]. Sun exposure is highly prevalent in all age groups, especially among young and it is influenced by certain believes and attitudes towards suntanning and stimulated by peer pressure and aesthetic references. In addition to exposure to sun radiation, the exposure to artificial sources of UV light is also increased. Another practice, which led to increased exposure to UV radiation, is the use of sunscreen, because users remain under the sun for longer periods.

What is the cause of higher incidence of malignant melanoma? Is it only trend and attitudes towards suntanning? When we imagine a prototype of a young female of 21st century, she is attractive, slim, with bronze complexion, dresses in the bathing suit, whereas the lady of the 19th is pale, dressed in white dress and with hat or sunshade that protects face and hair from the sun. When did social mores and medical knowledge about sun exposure change?

During the 19th century and early part of the 20th century, many individuals particularly women of the upper social classes were avoiding excessive sunlight. The avoidance was due to the risk of skin cancer but also due to avoid sunburn, suntan and damage of complexion. The

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primary means of protection were clothes, especially hats, veils, parasols and topical sun sunscreens. Homemade recipe included white petrolatum or almond oil combined with zinc oxide, chalky magnesia and bismuth. The most popular commercial agent was Pond's cream[6]. Although it was emphasized the prevention was the best method, there were also instructions for the treatment of sunburns and freckles. The sunburns were treated with cucumbers or strawberries with almond oil, lanolin, white wax, a tincture of benzoin and spermaceti. Bleaching of ephelides and lentigines was done by toxic chemicals, mercury bichloride. The trend of suntanning in US has already started at the end of the century, very slowly and achieved the mass acceptance in the 1920s. The popularity of suntanning reflected the way of life. The vacations to the seashores were enjoyed by all classes, especially for swimming instead only by upper class for entertainment, romance as it used to be by the end of the century. Women were engaged in many activities, which resulted in significant sun exposure. They were riding bicycles, playing tennis, playing golf, ocean bathing and swimming in the two part swimming suits. For the first time it was perception that a suntan was a sign of a good health and good times and a pleasant thing to see[7]. Even then sunntaning was a fashion. The Colleirs in 1933 published the interview with anonymous girl who sad it was handsome to be brown with a light evening gown. Both the fashion and cosmetic industries capitalized on the growth of sunbathing. Two pieces bathing suits were for the women, and men's bathing suit were reduced to just shorts.

As the 1920s began therefore, sunlight exposure was viewed in largely favorable terms both by physicians and the public. As suntanning was gaining popularity ultraviolet sun exposure was also being extolled in the medical literature. Sunlight along with fresh air was wieved as a tonic, able to renew health and vigor. Many in medicine viewed the discovery that sunlights could prevent or threat rickets at the same time as a confirmation that UV light had a beneficial effect to health[8]. Not only it had a beneficial effect, it improved tissue tone, and skin tone, acted as a general tonic, increased mental activity, and improved circulation and cured anemia. As a 1912 editorial in JAMA noted: »An abundance of direct sunlight, especially in some of the popular health resort, has always claimed a due share of the credit ascribed to invigorating climate«.

The UV wavelengths or non-visible chemical rays had been known to exist since 1800 after being demonstrated in independent experiments by Herschel and Ritter. Sunlight was shown by Downes and Bluntin 1877 to have bactericidal and fungicidal activity in vitro. In 1890s the Danish physician, Niels Finsen[9], became the father of modern phototherapy, when he reported the successful radiation in treating cutaneous tuberculosis. The medical profession enthusiastically embraced phototherapy. The importance of phototherapy was confirmed when Finsen won Nobel Prize in 1903. Successful results with phototherapy were reported in treating lupus erythematosus, alopecia areata, epithelioma, acne vulgaris, acne rosacea, tinea capitis, and vascular nevi and by the year 1905 foe dermatitis eczematoides and psoriasis vulgaris. The Swiss physician Oscar Bernard and Auguste Rollier[10] were pioneers in phototherapy with sunlight (heliotherapy). Bernard employed phototherapy in the treatment of chronic ulcers and wounds, cutaneous and other forms of tuberculosis, skin cancer, and leukemia. The use of phototherapy grew rapidly. Frank Krrusen listed in his textbook in 1937, 176 non-dermatologic and 73 dermatologic diseases in which UV light had beneficial effect.

There was lot of companies who marketed lamps. The two principal artificial light sources for phototherapy were carbon arc and quartz mercury vapor arc. Carbon arc lamps were so commonly used those instructions on constructing a simple one were provided in a New England Journal of Medicine in 1930[11]. It was possible to remove UV emission below 280 nm with glass filters, although unfiltered lamps were commonly by physicians and wee available for home use with a physician prescription. In the early 1903, a General Electric made a great step forward in comparison with competition. They developed tungsten-mercury vapor arc bulb emitting both visible and UV light. The company marketed this lamp for the everyday settings. The lamp was described as 50 times more effective in producing tanning of the skin as midday midsummer sunlight of equal intensity. However members of medical profession began to respond with criticism to aggressive marketing of the photolamps to the public[12]. The American Medical Association established guidelines for UV lamps and for medical use of phototherapy. The phototherapy was limited to the treatment of rickets, numerous dermatological disorders and certain forms of tuberculosis.

During the same time that UV light exposure was achieving greater popularity in both medical and nonmedical circles; the first reports appeared associating sunlight exposure with skin cancer. Charcot in 1858 demonstrated that the UV wavelengths caused erythema of the skin. By 1900 number of dermatological conditions had been described including xeroderma pigmentosus, hydroa vacciniforme, prurigo aestivalis and eczema solare. It was great Hamburg dermatologist Paul Gerson Unna[6] who is credited with first associating long-term exposure to the elements and precancerous changes in the skin. In 1906 prominent dermatologists, Nevis Hyde[13] described the high risk in patients with xeeroderma pigmentosus of developing skin cancer. In 1907, french dermatologist William Debroughill[14] reported epidemiological data suggesting that precancerous keratoses and skin cancer occurred more commonly in outdoor workers and on sun – exposed parts of the body. Norman Paul[15] published the book »The influence of sunlight in the production of the cancer of the Skin«. These observations gained very little attention out in the field of dermatology, despite of increased number of physicians, who believed that UV wavelengths were not that much beneficial. Therefore those articles were not published in popular magazines and the publics lack the information. Jay

Frank Schamberg[16] did one of the better analyses of that time on the mentioned origin in 1915 in his textbook Diseases of the Skin and Eruptive Fevers. The influence of UV wavelengths on skin cancer was unknown and it is very clear in the answer of the JAMA editor in 1929. He said that there was no evidence available that exposure to the sun predisposed to the skin cancer[6].

It was 1930 when UV radiation was recognized as a carcinogen. By 1932, the US Public Health Service was issuing warnings about the risk of sunbathing. Recommendations included avoiding the summer between 10 am and 3 pm, protect head from direct sunlight. The warning was especially for the blondes, with red hair and blue eyes who fail to tan, but always burn. In late 1920s, in Australian medical literature the correlation between squamous epithelioma and rodent tumor was published[17]. In 1936 a review in JAMA put sunlight as an ethological factor of a cancer. The primary carcinogenic wavelengths were determined to be from 290 to 320 nm. It was the beginning of the era when scientific results were published in the popular press. At the same time as the awareness about cancerogenity of the sunlight increased in the public, the interest in the development of sunscreen also increased. The first commercial chemical sunscreen was presented in 1929 and contained benzyl cinnimate and benzyl salicylate, where as the first chemical sunscreen contained zinc oxide or titanium oxide. In the market there were large number of sunscreens and the efficacy of each product was uncertain. So, FDA set the recommendation for labeling the product[18].

So tracing the trend and attitudes towards sunlight, we came up with the conclusion that there were 1930s when UV wavelengths were already considered to be cancerogene. Throughout the decades, the message that sunlight plays important role in the cancerogenity reached the public, but is seems hard to modify popular believes that tanned person looks beautiful and healthy[19]. Even now, the indoor tanning industry is increasing the profit. The incidence and prevalence of melanoma is in growth in the whole World. This underscores the importance of prevention and early detection of skin cancer.

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Ž. Bolanča

University Department of Dermatovenerology, University Hospital »Sestre milosrdnice«, Vinogradska cesta 29, 10000 Zagreb, Croatia
e-mail: zeljana.bolanca@gmail.com

TRENDOVI, NAVIKE I STAVOVI PREMA SUNČANJU

SAŽETAK

Epidemiološke studije ukazuju na povezanost navika izlaganja suncu i povišenog rizika za razvoj melanoma. Učestalost melanoma značajno se povećala posljednjih 40 godina. Izlaganje suncu je često u svim dobnim skupinama, osobito među mlađom populacijom i pod utjecajem je određenih stavova i uvjerenja, kao i pod pritiskom uvriježenih estetskih kriterija. Što je uzrok povišene učestalosti melanoma? Je li samo riječ o stavovima i navikama povezanim s izlaganjem suncu? Ako zamislimo tipičnu ženu 21. stoljeća, najvjerojatnije će biti atraktivna, vitka, brončane puti, odjevena u bikini, za razliku od žene 19. stoljeća koju stereotipno zamišljamo blijedom, odjevenom u bijelu haljinu sa šeširom ili drugim vidom zaštite za lice i kosu. Kada su se promijenili društveni običaji i medicinsko znanje o izloženosti suncu? Ključni trenutak je prijelaz iz 19. u 20. stoljeće sa značajnim napretkom u fototerapiji i rastućom popularnosti izlaganja suncu, što je odražavalo brojne društvene promjene. Na vrhuncu popularnosti novog trenda pojavljuju se i prvi izvještaji o povezanosti sunčevih zraka i raka kože, ali bez značajnog utjecaja na medicinsku struku, pa tako i bez odjeka u javnosti. Dvadesete i tridesete godine prošlog stoljeća obilježene su otkrićem da UV zrake valne duljine manje od 313

nm imaju važnu ulogu u sintezi vitamina D pa time i u prevenciji rahitisa. Sunčevim zrakama počeli su se pripisivati i brojni drugi pozitivni učinci. Tek kada su znanstvenici uspjeli izazvati rak kože u štakora izlaganjem UV zrakama, počelo se razmišljati o nepovoljnim stranama sunčanja. Uloga sunčevog svjetla u razvoju raka kože publicirana je u popularnim i zanstvenim časopisima tijekom 40-tih i 50-tih godina prošlog stoljeća. Tijekom godina, poruka da izlaganje suncu može povećati rizika za razvoj raka kože došla je do publike. Ali usprkos znanju, čak i danas većina ljudi misli da preplanula put izgleda zdravije. Stoga je potrebno uložiti dodatne napore kako bi se promijenili takvi stavovi.