Journal of Oncology Research & Treatments

Nikulin, J Oncol Res Treat 2024, 9:3

Perspective Open Access

Skin Cancer Risk Factors and Therapeutic Approaches: An Overview

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Received: 29-Apr-2024, Manuscript No. AOT-24-133539; **Editor assigned:** 02-May-2024, PreQC No. AOT-24-133539 (PQ); **Reviewed:** 16-May-2024, QC No. AOT-24-133539; **Revised:** 23-May-2024, Manuscript No. AOT-24-133539 (R); **Published:** 30-May-2024, DOI: 10.4172/aot.1000284

Citation: Nikulin C (2024) Skin Cancer Risk Factors and Therapeutic Approaches: An Overview. J Oncol Res Treat. 9:284.

Description

Skin cancer is the most prevalent type of cancer in the world. It is a broad category of cancers that result from unchecked skin cell proliferation. There are a number of risk factors that contribute to the pathogenesis of skin cancer, even though genetic predisposition and environmental variables play major roles in its development. Comprehending these risk variables is vital for prompt identification, avoidance, and efficient therapeutic handling of the illness.

Skin cancer is mostly caused by exposure to Ultraviolet (UV) radiation from artificial sources, including tanning beds, or from the sun. Extended or strong UV radiation causes DNA damage to skin cells, which can result in mutations that set off the development of cancer. People who have a history of regular sun exposure, outdoor jobs, or leisure activities without sufficient sun protection are more likely to acquire skin cancer, especially melanoma, Basal Cell Carcinoma (BCC), and Squamous Cell Carcinoma (SCC).

Reduced melanin pigmentation, a trait of fair skin color, is linked to an increased risk of skin cancer. Melanin functions as a natural sunscreen, shielding DNA from UV ray damage. Those with pale complexion, red or blonde hair, and light-colored eyes have lower melanin levels and are therefore more vulnerable to UV-induced skin damage. As a result, individuals have an increased chance of contracting non-melanoma skin cancers such as Basal Cell Carcinoma (BCC) and Squamous Cell Carcinoma (SCC), as well as the deadliest kind of skin cancer, melanoma.

An increased chance of skin cancer in later life is associated with blistering sunburns sustained in childhood or adolescent. The DNA of the skin is severely damaged by sunburns, which over time predisposes cells to cancerous transformation. Skin cancer develops in maturity as a result of the cumulative effects of sunburns and sporadic sun exposure throughout childhood and adolescence. Consequently, lowering the risk of skin cancer requires using sun protection and sunburn prevention methods, such as using sunscreen, hats, and protective clothes.

An important risk factor for the condition is a personal or family history of skin cancer, including melanoma, Basal Cell Carcinoma (BCC), or Squamous Cell Carcinoma (SCC). Those who have previously been diagnosed with skin cancer are more likely to experience a recurrence of the illness or acquire new primary tumors. A genetic susceptibility to skin cancer is also indicated by a family history of the disease, particularly in first-degree relatives. Hereditary genetic mutations that enhance susceptibility to melanoma formation include those found in the *CDKN2A* and *CDK4* genes. These mutations are known to cause familial melanoma syndromes.

An increased risk of skin cancer is linked to immunosuppression, which can be brought on by immunosuppressive medicines or underlying medical problems. Individuals with weakened immune systems such as those undergoing organ transplantation, getting chemotherapy or immunosuppressive medication for autoimmune illnesses, or living with HIV infection are more vulnerable to skin cancer. Immune surveillance systems are essential for identifying and eradicating cancerous cells, and their malfunction raises the risk of developing cancer.

A multidisciplinary approach customized to the unique features of each patient, the characteristics of the tumor, and the stage of the illness is required for the therapeutic care of skin cancer. Depending on the kind, location, size, and extent of the illness, treatment options for skin cancer might include systemic medications, radiation therapy, topical therapies, surgical excision, and Mohs micrographic surgery. Mohs surgery, which has a high cure rate and preserves tissue, or surgical excision are effective treatments for early-stage skin malignancies such as localized BCC or Squamous Cell Carcinoma (SCC).

Conclusion

Multifactorial skin cancer is impacted by a number of risk factors, such as exposure to UV light, pale skin tone, past sunburn history, personal and family history, and immunosuppression. It is important to comprehend these risk factors in order to put preventative measures into action, encourage early identification, and lessen the incidence of skin cancer. Furthermore, a comprehensive strategy that includes individualized surgical, radiation, topical, and systemic therapies is necessary for the therapeutic management of skin cancer. Healthcare professionals may increase the quality of life and improve patient outcomes for patients with skin cancer by addressing risk factors and implementing effective treatment options.