Non Melanoma Skin Cancer (NMSC)

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Key points

- Non melanoma skin cancer
- Risk factor
- Symptoms and effects
- Treatment

One of the most cancers in the world, skin cancer is common among Caucasian people. Malignant melanoma (MM) and non-melanoma skin cancer(NMSC) are the two main types of skin cancer, and they each have significantly varied clinical outcomes. The least common type of skin cancer, malignant melanoma accounts for about 5% of cases.1

Non melanoma skin cancer (NMSC):

Basal cell carcinoma (BCC) and squamous cell carcinoma (SCC) are the two most common kinds within this group, while additional varieties have also been reported occasionally. About 80% to 85% of NMSC instances are BCC, while 15% to 20% of cases are SCC, which has a higher propensity to metastasis than BCC. Because MM and NMSC have different metastasis propensities, although this type of cancer usually results in death, it can damage sensory organs including the lips, nose, and ears.1 Early risk factors have been identified for NMSC age, fair skin and eyes, freckles, and a family history of skin cancer are among the traits that increase the chance of developing non-melanoma skin cancer and UV radiation (UVR), which may be categorized into wavelength ranges as UVA1 (340–400 nm), UVA2 (320–340 nm), UVB (280–320 nm), and UVC (320–400 nm), is the main environmental cause of skin cancer (200–280 nm). Nevertheless, UVB is especially linked to direct DNA damage because it can produce photoproducts such pyrimidine dimers in the DNA of epidermal keratinocytes that impact DNA stability and replication

progress. This information explains why lesions appear on body parts that are exposed to the sun.1 According to recent investigations, NMSC lesions can develop mutations that change their phenotypic makeup to become more aggressive. Because of their plasticity, cancer cells can escape cellular regulatory mechanisms. Cancer is largely influenced by genetic factors, including particular processes, genes, and tumor microenvironment characteristics.1

You may be more likely to develop non-melanoma skin cancer if you have certain factors, including the following:

- a history of the disease in the family
- pale skin that burns readily
- a lot of freckles or moles

Symptoms and effects:

Skin cancer that is non-melanoma often presents as a lump or discolored patch that first emerges after a few weeks and then progresses gradually over several months or even years. This is the cancerous growth or tumor. Cancerous patches are often flat and scaly, whereas malignant masses are typically red, solid, and occasionally turn into ulcers. The areas of the skin most usually affected by non-melanoma skin cancer are the face, ears, hands, shoulders, upper chest, and back. Many unfavorable psychological consequences on patients have been linked to both the diagnosis and treatment of various cancers, according to studies. According to estimates, depression symptoms are present in 16–25% of cancer patients who have just received a diagnosis Many factors, some of which are related to tumors itself, such as appearance in visible parts of the skin, symptoms with pain, discharge, and bleeding, as well as patients' perceptions of skin cancer, contribute to quality of life impairment in patients with NMSC.4

Treatment:

Surgery and radiotherapy are effective treatments for the majority of NMSCs, advanced and metastatic stages may require systemic strategies such immunotherapy using immune checkpoint inhibitors (ICIs).3 Surgery, cryosurgery, curettage and electrode section, and radiotherapy are among of the well-established treatments for non-melanoma cancer; nevertheless, these traditional treatments result in inflammation and scarring. The topical use of chemotherapeutic medications helps achieve a successful outcome with fewer adverse effects in the non-surgical treatment of non-melanoma cancer. Anticancer

medications must, however, reach the deeper layers of the skin. Drugs can now enter tumor cells by using lipid delivery systems, including as liposomes, solid lipid nanoparticles, and nanostructured lipid carriers, which have been designed to get beyond the skin's epidermal barrier. These lipid nanoparticles help to regulate the chemotherapeutic medicines' release profiles, preserving their stability and accelerating tumor cell death.2

References

1. Zambrano-Román M, Padilla-Gutiérrez JR, Valle Y, Muñoz-Valle JF, Valdés-Alvarado E. Non-Melanoma Skin Cancer: A Genetic Update and Future Perspectives. Cancers. 2022 May 11; 14(10):2371.
2. Souto EB, da Ana R, Vieira V, Fangueiro JF, Dias-Ferreira J, Cano A, Zielińska A, Silva AM, Staszewski R, Karczewski J. Non-melanoma skin cancers: Physiopathology and role of lipid delivery systems in new chemotherapeutic treatments. Neoplasia. 2022 Aug 1; 30:100810.
3. Zelin E, Maronese CA, Dri A, Toffoli L, Di Meo N, Nazzaro G, Zalaudek I. Identifying Candidates for Immunotherapy among Patients with Non-Melanoma Skin Cancer: A Review of the Potential Predictors of Response. Journal of Clinical Medicine. 2022 Jun 11; 11(12):3364.
4. Abedini R, Nasimi M, Noormohammad Pour P, Moghtadaie A, Tohidinik HR. Quality of life in patients with non-melanoma skin cancer: Implications for healthcare education services and supports. Journal of Cancer Education. 2019 Aug 15;34:755-9