A SURVEY WORK ON RECENT EARLY DETECTION AND PREVENTION MODELS OF MELANOMA SKIN CANCER

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Skin cancer is the unrestricted growth of unusual skin cells. It occurs due to skin exposure to ultraviolet radiation from sun or tanning beds which cause unserviceable DNA damage, which makes the skin cells to multiply at a great rate and form malignant tumors. More than 90% of skin cancer cases are caused by exposure to UV radiation from the Sun. This increases the risk of all three main types of skin cancer. Different types of skin cancer are Basal cell carcinoma skin cancer (BCC), Squamous cell carcinoma skin cancer (SCC), Melanoma. The first two are known as non-melanoma skin cancer (NMSC). And the other one which is Melanoma type of skin cancer is very dangerous if is not identified & treated at an early stage. Therefore, it is necessary to work on efficient early detection methods of skin lesion for the diagnosis of melanoma type in the initial stage and to reduce the drawbacks present in the existing state-of-art-techniques. Recently, importance of pattern recognition techniques is widely improved in image processing and its medical applications. Automatic diagnosis of skin lesions within dermoscopy images is a crucial step toward developing a decision support system for skin cancer early detection. This early detection process includes Image segmentation, Feature extraction and Classification. Before the segmentation of an image, it is mandatory to go through pre-processing and Noise elimination. This segmentation works on the principle to provide solid balance between the number of foreground and background pixels. Still, Lesion segmentation can be challenging, as these skin images have various artifacts distorting the uniformity of the lesion area. When the lesion borders are blurred and when distinction between the lesion and the surrounding skin is very less, some of the segmentation methods have difficulties in the detection process. Along with lesion segmentation, feature extraction & classification are essential steps to detect the melanoma skin cancer in patients at an early stage. Usually, the proposed models can be tested on PH2 dermoscopy image dataset. The advantage of the any proposed model can be verified by comparing with various state-of-art-techniques in terms of segmented image, error reduction and efficient feature extraction. In this paper, by keeping all these things in view, we presented various recent early detection and prevention models of skin cancer that can be used for diagnosis along with advantages and disadvantages of each method. And finally the research gap is presented along with problem identification.

Keywords: Melanoma, Skin cancer, Segmentation, Feature extraction, Early detection