Evaluating the trend of cutaneous malignant tumors in Ilam from 2002 to 2011

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Abstract

Introduction: Skin cancer, the melanoma type of which causes high mortality, is the most common malignancy in Iran and all over the world. UV is the most important cause of the incidence of this disease. This study evaluates the frequency of different types of cancer and their trajectory in Ilam province from 2012 to 2011. Materials and Methods: This analytical–descriptive study covered and evaluated all skin cancer patients who were registered in Ilam Province Cancer Registry during 2002 to 2011. Required information of each individual patient, such as age, sex, residence, pathological type of skin cancer, the location of the incidence of the disorder, and the year, was collected and studied. Findings: Out of total 347 cases, 240 cases (69.2%) were diagnosed with basal cell carcinoma (BCC), 63 cases (18.2%) with squamous cell carcinoma (SCC), 16 cases (4.6%) with malignant melanoma (MM), 8 cases (2.3%) with metastatic cancer, and 20 cases (37.7%) with other skin cancers. Mean age of patients was 62.42 ± 16.11 years, and the majority of them (37.7%) were men and lived in the city. Face was the most common place of the incidence of this disease (81.6%) and hand was the least common one (1.7%). The rate of incidence of cancer has experienced considerable growth in men and a slight decrease in the case of women between 2002 and 2011 in Ilam. Conclusion: According to the results of this study, the rate of skin cancer has increased among men during the studied period; thus, necessary measures are required to prevent and reduce the incidence of this disease, especially in people who are exposed to the sun’s ultraviolet rays because of their jobs.

Keywords: Basal cell carcinoma, Ilam, skin cancer, squamous cell carcinoma

Introduction

Skin is the largest organ of the body that protects us against heat, light, and infection; it also helps in controlling body temperature, store water and fat, and produce vitamin D. Various cellular components of skin may change into malignancy. Skin cells grow and divide to take new forms. Cells age and die and new cells take their place; however, this orderly process sometimes goes wrong. Old cells do not die out and new cells grow when they are not actually needed in a specific part of the body. These extra cells form a mass of tissue called “tumor.” Skin cancer is one of the most common malignancies in the world.⁶ According to World Health Organization report, issued in 2000, out of total 13,627,699 cases of cancers, 10,532,711 patients were diagnosed with basal cell carcinoma (BCC), 2,833,037 patients with squamous cell carcinoma (SCC), 211,921 patients with malignant melanoma (MM). Skin cancer will have a significant impact on the overall disease load in the coming decades.⁵ Several studies conducted in different countries across the world emphasize the increasing incidence of skin cancers. Reports issued from the UK, USA, and Australia show that cutaneous tumors are the most common human tumors; they also argue that BCC is the most common skin cancer.⁴,⁵ Skin cancer has a high rate of occurrence in old men of white race.⁵-⁷ Although several genetic factors affect the incidence of skin cancer, type of skin and exposure to the sun...
are the most important factors in the development of skin cancer. Nonmelanoma skin cancers, such as basal cell carcinoma and SCC, are the most common malignancy in America and most parts of the world; these disorders have experienced considerable growth in recent years. According to official statistics, nonmelanoma skin cancer, the basic cause of incidence is exposure to sunlight, is one of the four most common cancers in adults. A total of 1.3 million Americans are diagnosed with nonmelanoma cancers each year. Although cancer rates are declining, skin cancer is rising at a rate of 3%–5%, despite being preventable and treatable, each year. Our country is prone to experience increasing skin cancer rates because of severe sunlight in most seasons of the year, exposure of farmers, herdsmen, and construction workers to ultraviolet radiation, and failure to use appropriate protection such as hats, glasses, and clothing when working in an open environment. Based on what has been mentioned so far, this study was conducted to evaluate and assess the frequency and trajectory of malignant cutaneous tumors in Ilam during 2002 to 2011 to plan and implement more precise measure for preventing and treating various skin cancers.

**Materials and Methods**

The sample size of this descriptive–analytical study included 347 subjects, all of whom were registered as suffering from skin cancers in Ilam Cancer registry between 2002 and 2011, with a confidence level of 95% and error rate of 5%. Required information of each individual patient, such as age, sex, residence, pathological type of skin cancer, the location of the incidence of the disorder, and the year, was collected and recorded in Excel. SPSS software, version 20, was used to conduct an analytical analysis of the data; confirmation of ethics committee was received before the initiation of the study.

**Findings**

A total of 347 patients, including 227 (65.4%) male and 120 (34.6%) female subjects, were analyzed in this study; mean age of study participants was 62/42 ± 16/11 years, with a minimum age being 10 and maximum age being 110 years [Figure 1]. BCC had the highest frequency (69.2%). SCC, miscellaneous skin cancers, melanoma, and metastatic had a frequency of 18.2%, 5.8%, 4.6%, and 2.3%, respectively [Table 1]. In terms of the anatomical location of lesions, most to least common frequencies belonged to face (81.6%), body (7.5%), foot (5.2%), neck (4%), and hand (1.7%) [Table 1]. The statistical analysis showed that 63.7% of subjects resided in the city and urban areas; the incidence of cancer among all diseases was more prevalent in the city people in comparison with village people. According to the findings of this study, the highest incidence of malignant tumors transpires after the fifth decade of life, between 60 and 79 years, with a frequency of 156 subjects (45%) [Table 2]. Except for miscellaneous skin cancers, the incidence of cancer is more common among men rather than women in all types of skin cancers [Table 1 and Figure 2]. Bowen’s disease had the highest frequency among miscellaneous skin cancers (20 cases) [Table 3]. The maximum and minimum relative incidence was 71.2% and 0.6%, body (7.5%), foot (5.2%), neck (4%), and hand (1.7%) [Table 1].

**Table 1**: The frequency distribution of clinical forms of cutaneous malignant tumors in terms of some variables

| Total | Other tumors | Metastatic | Melanoma | SCC | BCC | Tumor type |
|-------|--------------|------------|----------|-----|-----|------------|
|       | Frequency    | Frequency  | Frequency| Frequency | Frequency | Frequency  | Frequency | Variables |
| 227 (%100) | 9 (%3/96) | 4 (%1/76) | 9 (%3/96) | 49 (%21/58) | 156 (%68/72) | Men | Sex |
| 120 (%100) | 11 (%9/16) | 4 (%3/33) | 7 (%6/83) | 14 (%11/66) | 84 (%70) | Women |
| 347 (%100) | 20 (%65/76) | 8 (%2/30) | 16 (%6/41) | 63 (%18/15) | 240 (%69/16) | Total |
| 63/90±14/88 | 40.44±18/09 | 67/75±9/21 | 57/88±16/87 | 67/87±14/98 | 64/253±13/44 | Men | Age (mean±SD) |
| 59/60±17/95 | 56/63±22/47 | 52/00±20/47 | 64/00±22/75 | 62/85±21/31 | 59/45±16/44 | Women |
| 62/41±16/11 | 49±35±21/72 | 59/87±16/94 | 60/56±19/20 | 66/76±16/53 | 62/57±14/70 | Total |
| 283 (%100/0) | 8 (%62/8) | 4 (%1/60) | 8 (%2/8) | 47 (%16/6) | 216 (%76/3) | Face | Location of incidence |
| 14 (%100/0) | 0 (%4/0) | 0 (%4/0) | 1 (%7/1) | 5 (%35/7) | 8 (%57/1) | Neck |
| 26 (%100/0) | 7 (%26/9) | 3 (%4/1/5) | 2 (%7/7) | 5 (%19/2) | 9 (%34/6) | Body |
| 6 (%100/0) | 1 (%16/7) | 0 (%4/0) | 0 (%4/0) | 2 (%33/3) | 3 (%50/0) | Hand |
| 18 (%100/0) | 4 (%22/2) | 1 (%5/6) | 5 (%27/8) | 4 (%22/2) | 4 (%22/2) | Foot |
| 221 (%100/0) | 13 (%5/9) | 6 (%2/7) | 11 (%5/0) | 35 (%45/8) | 156 (%70/6) | Urban | Place |
| 126 (%100/0) | 7 (%5/6) | 2 (%1/6) | 5 (%4/0) | 28 (%22/2) | 84 (%66/7) | Rural |

BCC: Basal cell carcinoma; SCC: Squamous cell carcinoma

**Table 2**: The frequency distribution of clinical forms of cutaneous malignant tumors in terms of age groups

| Total | Other tumors | Metastatic | Melanoma | SCC | BCC | Tumor type |
|-------|--------------|------------|----------|-----|-----|------------|
|       | Percent | Frequency | Percent | Frequency | Percent | Frequency | Percent | Frequency | Percent | Frequency | Percent | Frequency | Tumor type | Age |
| 1/7 | 6 | 50 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 3 | 1-19 |
| 6/9 | 24 | 12/5 | 3 | 4/2 | 1 | 12/5 | 3 | 16/7 | 4 | 54/2 | 13 | 20-39 |
| 31/7 | 110 | 6/4 | 7 | 0/9 | 1 | 4/5 | 5 | 12/7 | 14 | 75/5 | 83 | 40-59 |
| 45 | 156 | 3/2 | 5 | 0/6 | 1 | 3/8 | 6 | 17/9 | 28 | 74/4 | 116 | 60-79 |
| 14/7 | 51 | 3/9 | 2 | 0 | 0 | 3/9 | 2 | 33/3 | 17 | 58/8 | 30 | >80 |

BCC: Basal cell carcinoma; SCC: Squamous cell carcinoma

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respectively [Table 4]. The rate of incidence of cancer has experienced considerable growth in men and a slight decrease in the case of women between 2002 and 2011 in Ilam.

Discussion and Conclusion

This study, which lasted for 10 years, investigated an overall number of 347 patients. In terms of the frequency of the sex of subjects, the results of this study showed that men are diagnosed with skin cancer more than women, which is consistent with the findings of other research conducted around the world.\textsuperscript{6,10} The results of studies carried out in Mashhad\textsuperscript{31} and Hamedan\textsuperscript{19} showed that basal cell carcinoma is more common in men with a rate of 4 and 1.8, respectively. Based on Yazdanfar study, BCC is a more common phenomenon among men in comparison with women.\textsuperscript{25} The study which was conducted in Switzerland showed that BCC is more common among men in comparison with women.\textsuperscript{22} The results of Abdol-Seied\textsuperscript{25} and Ansarin study\textsuperscript{23} indicated a higher incidence of BCC among men. Based on the findings of research conducted in Japan, BCC occurs with an equal rate among both sexes.\textsuperscript{24} A study which was conducted in Bangkok on 67 patients showed that BCC is a more common phenomenon among women rather than men.\textsuperscript{26} The main causes of the higher rate of skin cancer among men might be exposure to sunlight and ultraviolet radiation because of occupational necessities. According to Miler et al., hair follicles may play a role in the incidence of BCC. Boxman et al., discovered human papillomavirus DNA in isolated hair; they claimed that BCC can influence carcinogenesis\textsuperscript{27} thus, a difference in the dermal appendages, such as hair follicles, could make a difference in the incidence of BCC in both sexes. In terms of incidence age, the emergence of skin cancer is more common and probably in the sixth and seventh decades of life.\textsuperscript{6,26-31} The incidence rate of BCC at the age of 40–79 years is 95\%.\textsuperscript{12} According to Collins et al.’s study, the mean age of patients suffering from BCC is 64 years in the Netherlands, which is consistent with the findings of this study.\textsuperscript{33} The main causes of such a fact might be increased elderly population, skin type of the inhabitants of the region, the impact of environmental factors such as excessive exposure to the sun, late referral of patients to the doctor, increased awareness of younger generation of the dangers of sunlight, and decrease in professions, such as agriculture and raising animals among the younger generation. MM usually occurs at a younger age and this study reported 29–30 years of age as the highest frequency incidence age of these lesions. Based on the findings of a study conducted in Mashhad, the rate of the incidence of BCC, SCC, and MM was 57.7\%, 20.2\%, and 4.4\%, respectively. The rate of

| Table 3: Frequency distribution of miscellaneous skin cancers |
| Name of the tumor | Frequency |
|-------------------|-----------|
| Malignant fibrous histiocytoma | 1 |
| Sarcoma, NOS | 2 |
| Dermatofibrosarcoma protubersans | 3 |
| Kaposi sarcoma | 3 |
| Leiomyosarcoma | 2 |
| Bowen’s disease | 5 |
| T-cell lymphoma | 1 |
| Malignant lymphoma | 1 |
| Fibrosarcoma | 1 |
| Basosquamous cell carcinoma | 1 |
| Total | 20 |

| Table 4: Frequency distribution of cutaneous malignant tumors in terms of the year of incidence |
|---|
| Total | Other tumors | Metastatic | Melanoma | SCC | BCC | Tumor type |
| Percent | Frequency | Percent | Frequency | Percent | Frequency | Percent | Frequency | Percent | Frequency |
| 100/0 | 13731 | 0/0 | 0 | 9/1 | 1 | 0/0 | 0 | 0/0 | 0 | 9/9 | 10 |
| 100/0 | 14 | 0/0 | 0 | 7/1 | 1 | 0/0 | 0 | 0/0 | 0 | 14/3 | 2 |
| 100/0 | 16 | 6/2 | 1 | 6/2 | 1 | 12/5 | 2 | 25/0 | 4 | 50/0 | 8 |
| 100/0 | 26 | 15/4 | 4 | 3/8 | 1 | 12/5 | 2 | 26/9 | 7 | 50/0 | 13 |
| 100/0 | 40 | 2/5 | 1 | 5/0 | 2 | 7/5 | 3 | 17/5 | 7 | 67/5 | 27 |
| 100/0 | 45 | 2/2 | 1 | 4/4 | 2 | 6/7 | 3 | 11/1 | 5 | 75/6 | 34 |
| 100/0 | 50 | 6/0 | 3 | 0/0 | 0 | 4/0 | 2 | 24/0 | 12 | 66/0 | 33 |
| 100/0 | 52 | 7/7 | 4 | 0/0 | 0 | 0/0 | 0 | 0/0 | 0 | 21/2 | 11 |
| 100/0 | 48 | 6/2 | 3 | 0/0 | 0 | 2/1 | 1 | 16/7 | 8 | 75/0 | 36 |
| 100/0 | 45 | 6/7 | 3 | 0/0 | 0 | 8/9 | 4 | 15/6 | 7 | 68/9 | 31 |
| 100/0 | 347 | 5/8 | 20 | 2/3 | 8 | 4/6 | 16 | 18/2 | 63 | 69/2 | 240 |

BCC: Basal cell carcinoma; SCC: Squamous cell carcinoma
the incidence of BCC was, for Yazd\cite{8} and Isfahan,\cite{37} 74% and 76%, respectively, in 1997. According to the Brisbane Pathology Center Report, 60% of 676 patients were diagnosed with BCC, 15% with SCC, and 4% with MM.\cite{33-35} According to the results of studies conducted in the USA, the incidence rate of BCC was 75% among different types of skin cancer;\cite{25-27} the incidence rate of BCC was, approximately, 79% in Australia;\cite{28,31} such statistics are almost consistent with the findings of this study. BCC, SCC, and MM had the highest incidence rate.\cite{31} Based on the results of a study conducted in Mashhad, 93% of BCC lesions and 74% of SCC lesions occurred in the area of head and neck and extremities were the most common sites for the emergence of MM. Based on the results of a study conducted in Kerman, the incidence sites of SCC were head and neck in 77% of patients.\cite{37} The most common, 81.6%, site of the incidence of skin cancer turned out to be face in this study. Because of being constantly exposed to severe sunlight, head and neck show to be more susceptible to skin abnormalities.\cite{26,28,31,36,42} Based on the results of this study, 63.7% of patients turned out to live in the city; the frequency of city people is more than that of village people in suffering from all kinds of skin cancers; however, considering the place of the conduct of this research, there are possibilities of bias. According to the results of this study, the rate of incidence of cancer has experienced considerable growth in men and a slight decrease in the case of women between 2002 and 2011; the main causes of such considerable difference of results might be usage of Islamic veil and prompt medical attention on the part of women and increased exposure to solar ultraviolet because of occupational reasons on the part of men. Skin cancer has become more common with increasing age; consequently, certain necessary measures must be implemented to prevent and reduce the incidence of such diseases, especially in individuals who are constantly exposed to solar ultraviolet because of occupational reasons.

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Conflicts of interest
There are no conflicts of interest.
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