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Facial Non-Melanoma Skin Cancer in Jordan: A Cross Sectional Descriptive Study

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Abstract **Original Research Article**

Basal cell carcinoma (BCC) and squamous cell carcinoma (SCC) are two of the most frequent types of facial skin cancer to be reported in clinics; yet is very much under studied in Jordan. The main objective of this study is to determine the incidence of the non-melanoma facial skin cancers (BCC versus SCC) in the Jordanian population and see how common they really are in relation to variations in gender. This cross-sectional descriptive study took place in the Royal Rehabilitation Center of the Jordanian Royal Medical Services over a three-year period (from January 2013-December 2015). The study included all patients with histologically confirmed malignancies excised from the face by the plastic and reconstructive surgeons in the plastic and reconstructive facility of the hospital. A 362 random based sample with pathologically confirmed BCC or SCC in the face out of a total 2935 patients with facial excised lesions were studied and the specific location of the tumor in the face were collected and analyzed. The aim was to find the incidence of non-malignant facial skin cancer in the Jordanian population as well as the incidence of Basal Cell Carcinoma versus Squamous Cell Carcinoma, and gender variations. The study revealed that the total incidence of malignant lesions in the face was 12.34% out of which 55% were males and 45% were females and the total percentage of BCC cases was 54.14% in comparison to the total percentage of SCC which was 40%. There is a relatively high incidence of non-melanoma facial skin cancers within the Jordanian population; revealing a higher incidence of BCC than SCC. Males are at higher risk of developing malignant skin tumors than females in both subtypes.

Key words: Non-melanoma skin cancer, Basal Cell Carcinoma, Squamous cell carcinoma, incidence.

INTRODUCTION

It is widely and commonly known that skin is the largest organ in the human body, covering the entire body surface area [1] and weighs approximately 20 pounds[2]. Some of the main functions of the skin are: protection, thermal regulation, the ability to help us feel different sensations (such as pressure, pain, contact, heat, and cold), as well as having an endocrine function of being the main source of vitamin D. Putting in mind the various functions of the skin, it would be safe to say that there is therefore numerous amount of skin disorders that anyone can be affected with; varying from benign lesions (such as discoloration, eczema, acne, dermatitis) to precancerous and malignant lesions (such as non-melanoma and melanoma skin cancers).

Skin cancer is considered one of the most common cancers and is ranked in fifth place for both genders according to the American cancer society [3]. It has also been shown in recent figures that one in five develop skin tumour by the age of 70[4].

It was observed and noted by physicians working in dermatological and plastic surgery clinics in the kingdom that the number of patients with skin cancer (non-melanoma and melanoma) visiting clinics has been on a rise. This mere observation tackled with the curiosity to raise the question of how predominantly is skin cancer found among Jordanians. The lack of statistical description of the problem attracted attention among physicians of Jordan to try and provide solid reliable database of the disease incidence in the country; with the main aim of enhancing health care towards these cases. The aim of this paper is to discuss facial skin non melanoma malignant tumours in terms of incidence in The Kingdom of Jordan.

METHOD

A retrospective analysis of the data was collected during 3 years period from January 2013 to December 2015. The information collected was on all excised and histologically confirmed skin cancers found in the royal rehabilitation center (RJRC). Institutional review board IRB consent was submitted and obtained prior to data collection (Human Research & Ethics Committee, Royal Medical Services, Amman, Jordan Ref. ……) the main aim was to further subtype the sample and count the number of non-melanoma facial skin cancers. In doing so, it was found that out of all the 2935 facial skin lesions excised there was a total 362 malignant facial lesions. Data regarding the anatomical distribution of facial skin carcinomas has been collected according to the facial map [figure 1]. Patient's demographics occupations and other data were also noted. This data preview was limited to the research team and for research purposes only. Data were analysed and described using Microsoft Excel 2010. Descriptive statistics included central tendency measures, frequency, dispersion and ratios.

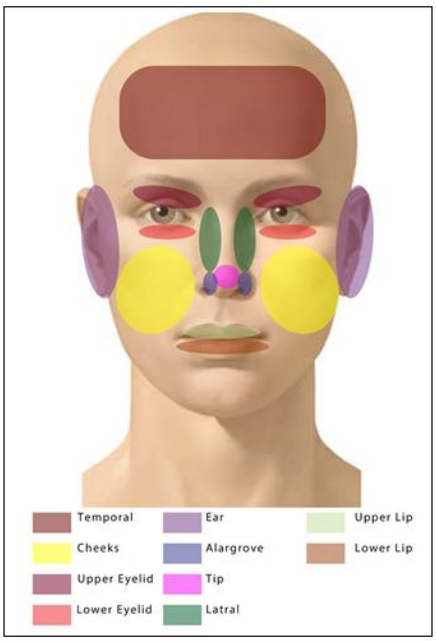

Fig-1

RESULTS

A total of 362 confirmed pathological malignant lesions out of 2935 lesions were surgically removed from the face by physicians of the plastic and reconstructive surgery department in the RJRC. This revealed a total of 12.34% histologically confirmed malignancies in the face during the three yeasr period. The data was further broken down into gender based, type-specific, and site-specific, after which incidence rates were reported. The total incidence of BCC is 54.14%, 40.06% SCC, 4.41% of cases were diagnosed with cutaneous melanoma (CM), and 1.38% reported cases with other histological types of skin tumours were observed [figure 2].

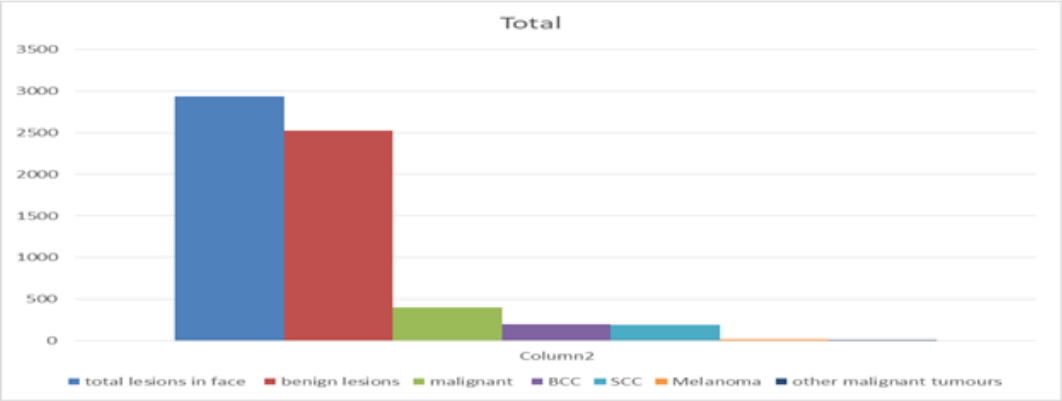

Fig-2

Numbers were tallied and the following was equated; the total number of BCC cases were 196 out of which there were 93 female cases and 103 male cases. As for the SCC cases there were a total number of 145 cases with 54 female cases and 91 male cases. 15 cases were diagnosed with cutaneous melanoma (CM), and 6 cases with other histological types of skin tumours.

Total recurrence cases were 71 (from both BCC and SCC), with 18 female cases and 53 male cases. As per what was mentioned earlier, BCC incidence proportion is 54.14% of all cases out of which 47.4% were female and 4.08% suffered recurrence compared to an incidence proportion of 52.5% male cases with 5.1% total recurrence. SCC risk is 40.06% of total cases out of which 37.2% were female with 6.89% recurrence in comparison to males which showed 62.7% total of the SCC cases and 29.65% recurrence.

A goodness of fit (Chi-Square) analysis was used to determine gender differences in distribution of histological lesion type. As calculated before there were 194 total male cases versus 157 female cases suggesting that males are at a higher rate of involvement in both the BCC and SCC categories. The statistical analysis chi squire goodness of fit at a significance level α of 0.05 was calculated and the result according to this study shows that the proportion of gender with BCC & SCC are equally distributed at a p-value of 0.249179; hence revealing that it is statistically insignificant. Therefore; we can conclude that there is no significant difference in gender distribution when investigating skin malignancies in the Hashemite Kingdom of Jordan in the given studied period.

It is deemed to mention that the majority of excised lesions were located on the right aspect of the face at an incidence risk of 53%.

The nasal lesions ranked in the first place as the most reported lesion site, with a risk of 28.7% of all tumours. 67 cases were located on the lateral aspect of the nose with a 68% incidence rate. There were recurrences without a doubt of 13 cases showing an incidence of 19.4% and 17.5% of all recurrence rates. Out of the recurrent lesions 38.4% of them were males with SCC and 33% of all recurred nasal lesions were in the alar groove area.

Cheeks lesions compensated for 27.6% of all lesions, which showed to be the second highest incidence rate. 52.13% of them were located on the left cheek, and 53% of the left cheek lesions were males, 34% of them with BCC and 66% with SCC. Half of the males affected with SCC suffered recurrence in this particular area.

Eye Lids lesion accounts for 8.5 % from total malignant lesions on face , BCC 68.96% and SCC 31.03% with upper eye lid accounts for 44.82 % and lower eye lid 55.17%. Rate of recurrence 2.34% from all malignant eye lids lesions.

Ear lesions accounts for 7.03% from malignant lesions on face, BCC 58.33% and SCC 41.66% and all affected cases of Ear SCC were males. Right side ear malignant lesions were more than left with incidence of affection 66.66 % compared to left side ear.

Scalp lesions made up 7% of all cases, 75% of which were SCC and had a shockingly high recurrence rate in males of 80%; while females with scalp SCC showed no recurrence. Also both genders with BCC had no recurrence.

All reported temporal lesions (including BCC and SCC) were located on the right side of the face, and had no recurrence. It also marked the lowest incidence rate at 4.6% of malignant lesions.

DISCUSSION

Trends world-wide demonstrate directional tendency toward developing skin cancer to the left side of the human body; especially in melanomas and SCC [5] this trend weren't manifested in our sample as our research displayed insignificance of the directional trend in data collected.

Various Studies demonstrated predominance of BCC over SCC, as non-melanomas the studies reported BCC frequently at higher rates of incidence as a histological type than SCC [6] which consist with the findings of this study, some described BCC to be the most prevalent non melanoma skin tumour [7], some reported higher SCC rates [8] which contradicts with our finding.

In the aspect of location facial cancers compared to the rest of the body scored the highest incidence rate at about 23.7% of the cases [9, 10, 6, 14, Nose took place as the most recorded injury site by 35.6% which is same in ranking as the most frequent location in this research and even close in percentile (28.7% of facial lesions in this study) eye lid 16% compared to 15% in this study and cheek lesion 12% Vs 27.6%, the reverse order of our finding as in the cheeks ranked in the second place and the eyelids in third [11].

Other study [12] showed that females more affected with Non-melanoma skin cancer on face (female 45 % , male 39 %) and eye lids than males , in comparison males more affected on scalp than females, in our study males were generally higher affected than females on face and ear lesions were mostly affecting males.

Males also were more prone to skin cancer than females about 14.6 % are males compared to 9.4%

females in Australia [9] in the united states [13] and Korea [5] placing gender role in the susceptibility to sustain skin cancer directed in higher rates toward males, recurrence rates also showed a favouring based on gender toward males in an international level placing males as more susceptible to recurrence than females [9,6], this goes with our findings ,yet some variation are reported for instance females in Iran had higher incidence by 52% in the sample which contradict our study [7, 15].

CONCLUSION

Males in Jordan are at higher risk of developing malignant skin tumours and those with skin tumours have two folds the female risk of recurrence, the occupational and self-care behaviours in males might have contributed to this outcome in Jordan society. This study on a national level is a seed for future studies; hence, we suggest that further investigation is unquestionably needed due to lack of statistics in skin cancer in the Jordanian population.

Question

How common is Non-Melanoma Skin Cancer in the Jordanian Population?

Findings

The study was a cross-sectional study, reviewing a sample of 2935 patients over 3 years. The total incidence of malignant lesions in the face was 12.34% out of which 55% were males and 45% were females, an insignificant difference.

Meaning

A relatively fair incidence of non-melanoma facial skin cancer is seen in the Jordanian population.

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