Comparative Study on the Demographic, Clinical and Pathological Characteristics of Skin Basal Cell Carcinoma among Patients in Baghdad and Erbil

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ABSTRACT

Worldwide, skin cancer is a major public health burden as its incidence has been increasing over the past decades. Basal cell carcinoma (BCC) is the most common form of human cancer which is highly curative when diagnosed early.

One hundred eighty five lesions on the head and neck belonging to 140 patients who were suspected to have BCC by clinical examination in a dermatological consultation clinic of AI-Yarmook teaching hospital were compared to 170 lesions on the head and neck of 140 patients attending Erbil dermatology teaching center who were suspected to have BCC by dermatoscopic examination. More than one lesion was found in some patients. The excisional biopsies of these lesions were sent for histopathological study to confirm the diagnosis of BCC. The corresponding biopsy results were compared with the socio-demographic and clinical features of the two study settings.

No significant differences between the two study settings were noted concerning sex or smoking history. On the other hand, statistical differences were observed regarding residency, previous work and family history of skin cancer with p* value equivalent to (0.000), (0.003) and (0.000) respectively.

In both study settings patients had skin photo type III, displaying significant differences concerning clinical types. Nodular type was more common in Baghdad while ulcerative type was more evident in Erbil with P*= (0.005) and (0.000) respectively.

Sun exposure is an important risk factor for developing skin cancer specially in those resident in rural areas. Dermatoscopical examination of the skin proved to be a useful real time noninvasive visual aid in the diagnosis of BCC yielding a higher sensitivity for the diagnosis of BCC than that of clinical diagnosis.

Keywords: *Basal cell carcinoma, Dermatoscopy, Histopathology*

Introduction

Worldwide, skin cancer is a major public health burden as its incidence has been increasing over the past decades [(1)]. According to the latest published Cancer Registry in Iraq, skin cancer is the ninth most commonly diagnosed malignancy among the Iraqi population [(2)]. Basal cell carcinoma (BCC) is the most common form of human cancer which is highly curative when diagnosed early and can be readily treated with office-based therapy [(3)], Ultraviolet radiation from sun exposure intermittently plays as an important etiological factor in its pathogenesis [(4)]. Other known risk factors for BCC are fair skin, sun burn, smoking and subjection to ionizing radiation [(5)]. It usually does not metastasize, but sometimes if neglected by the patient it can distract the skin and invade underlying structures like bone, its growth in size can make the lesion inoperable especially on the face [(5,6)].

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BCC is defined by World Health Organization Committee of the skin tumors as "a locally invasive, slowly spreading rarely metastasizing tumor, arising in the epidermis" [6,7], it is also known as Rodent Ulcer. It rarely metastasizes when diagnosed and treated early [7,8], however it could present late or even devastating if further neglected thus necessitating aggressive surgical approaches [9].

Skin type is another important factor which could influence signal intensity [10]. In general, skin types are classified into six categories according to the Fitzpatrick scale as follows:

Type I : always burns, never tans (palest; freckles), Type II : usually burns, tans minimally, Type III : sometimes mild burn, tans uniformly, Type IV : burns minimally, always tans well (moderate brown), Type V : very rarely burns, tans very easily (dark brown), Type VI : never burns (deeply pigmented dark brown to darkest brown) [10,11].

Clinical variants of BCC include: Nodular, Ulcerated, Superficial Spreading, Infiltrative and Morphea form with pigmented and non pigmented sub classification for each one [12].

The aim is to detect the association between socio- demographical picture, clinical and pathological characteristics of patients with BCC attending AL-Yarmook Teaching Hospital and those attending Erbil Dermatology Teaching Center and to compare the accuracy of diagnosis between the two study settings by comparing the methods of diagnosis and the reported biopsy results.

Materials and Method

A cross sectional study conducted among patients attending a dermatological consultation clinic in AI-Yarmook teaching hospital and Erbil dermatology teaching center from August 2017 to June 2018.

One hundred eighty five lesions on the head and neck belonging to 140 patients who were suspected to have BCC by clinical examination in a dermatological consultation clinic of AI-Yarmook teaching hospital were compared to 170 lesions on the head and neck of 140 patients attending Erbil dermatology teaching center who were suspected to have BCC by dermatoscopic examination. More than one lesion was found in some patients. The excisional biopsies of these lesions were sent for histopathological study to confirm the diagnosis of BCC. The corresponding biopsy results were compared with the socio-demographic and clinical features of the two study settings.

Chi square test was used, * P values less or equivalent to 0.05 were considered significant.

Results

Concerning the socio-demographic characteristics in AI-Yarmook teaching hospital patients, 68 (69.3%) of them were males and 30 (30.7%) were females, their ages ranged between 37 to 72 years, with a mean of 66.5 ± 1.5 years. Seventy eight (79.6%) patients were rural areas resident while 20 (20.4%) patients were city residents and 59 (60.2%) of them previously worked as farmers. Smoking was predominant habit among them in 68 (69.3%) patients. Family history of skin cancers was positive in 35 (35.7%) patients.

Regarding Erbil dermatology teaching center patients, 83 (61.9%) of them were males and 51(38.1%) were females, their ages ranged between 35 to 87 years, with a mean of 68.3 ± 1.5 years. Sixty three (47%) patients were rural areas resident while 71 (53%) patients were city residents and 83 (61.9%) of them previously worked as farmers, smoking was predominant habit among them in 93 (69.4%) patients. Family history of skin cancers was positive only in 14 (10.4%) patients.

A significant differences were noted concerning the residency, previous work and positive family history of skin cancer among patients in the two study settings with p values (0.000,0.00,0.000) respectively (Table 1).

Table 1: Association of socio-demographic characteristics between two study settings

		AI-Yarmook teaching hospital patients (n = 98)		Erbil dermatology teaching center patients (n = 134)		P*-value
Parameter		No.	%	No.	%	
Sex	Male	68	69.3	83	61.9	0.240
	Female	30	30.7	51	38.1	

Conted…

Age (mean ± SD) years		66.5 ± 1.5		68.3 ± 1.5		
Residency	Inside the city	20	20.4	71	52.9	0.000
	Rural areas	78	79.6	63	47.1	
Previous work (past 20 years)	Government officer	11	11.2	34	25.4	0.003
	Private work	16	16.3	8	6.0	
	Farmer	59	60.2	83	61.9	
	None	12	12.3	9	6.7	
Smoking history	Smoker	68	69.3	93	69.4	0.998
	Non smoker	30	30.7	41	30.6	
Family history of skin cancer	+ ve	35	35.7	14	10.4	0.000
	- ve	63	64.3	120	89.6	

* Chi square test was used.

The patients' skin photo type of Al-Yarmook teaching hospital according to Fitzpatrick's classification was mainly type III 68 (69.3%) patients. Skin photo type II was observed in 23 (23.4%) patients, photo type IV in five (5.1%) patients and only two (2.2%) patients were of skin photo type I. On the other hand, in Erbil dermatology teaching center the patients' skin photo type III was observed in 101 (75.3%) patients, photo type II in 19 (14.3%) patients, photo type IV in 12 (8.9%) patients and only two (1.5%) patients were of skin photo type I (Figure 1).

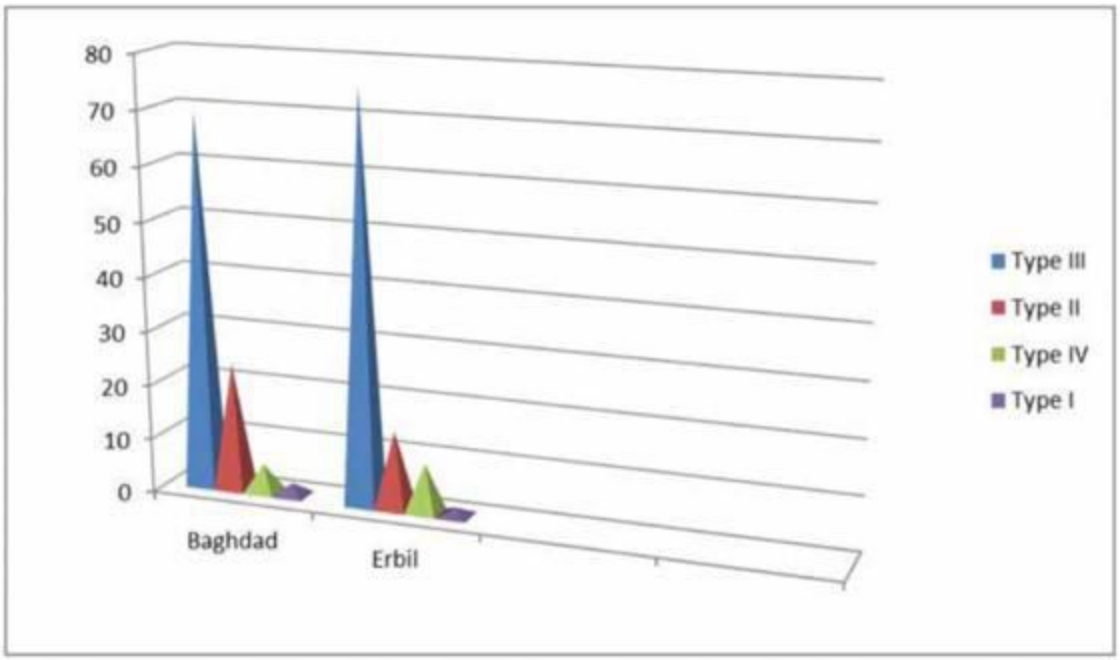

Figure 1: Comparison between the two study settings concerning patients' skin photo type according to Fitzpatrick's classification

The BCC tumors were classified according to their clinical types, in Al-Yarmook teaching hospital, the most frequent type was the nodular variant which found in 68 (52.7%) lesions. Morphea form was the least common one as it found only in 3 (2.3%) lesions. The BCC were generally and for each type clinically subdivided in to pigmented BCC (pBCC) and non-pigmented BCC (npBCC) which their proportions were (68.2%) and (31.7%) respectively, while in Erbil dermatology teaching center, the most frequent type was the ulcerated variant which found in 74 (45.4%) lesions. Morphea form also was the least common one as it found only in 7 (4.3%) lesions, pigmented BCC (pBCC) and non-pigmented BCC (npBCC) proportions were (65.5%) and (34.4%) respectively.

A significant difference between two study settings was noted in nodular and ulcerative types with P values of (0.005) and (0.000) respectively (Table 2).

Table 2: Association of Clinical types of BCC and their sub-classification of pigmentation between the two study settings

Clinical Type	Al-Yarmook teaching hospital lesions (n = 129)			Erbil dermatology teaching center lesions (n = 163)			P-value
	N(%)	pBCC	npBCC	N(%)	pBCC	npBCC	
Nodular	68 (52.7%)	45(66.2%)	23(33.8%)	59(36.2%)	38(64.4%)	21(35.6%)	0.005
Ulcerated	31 (24.2%)	28(90.3%)	3(9.7%)	74(45.4%)	4(64.5%)	26(35.5%)	0.000
Superficial spreading	18 (13.9%)	8(44.5%)	10(55.5%)	13 (7.9%)	9(69.2%)	4 (30.8%)	0.100
Infiltrative	9 (6.9%)	6(66.7%)	3(33.3%)	10 (6.2%)	8(80.0%)	2 (20.0%)	0.772
Morphea form	3 (2.3%)	1(33.3%)	2(66.7%)	7 (4.3%)	4(57.1%)	3 (42.9%)	0.521**
Total	129 (100%)	88 (68.2%)	41 (31.7%)	163 (100%)	107 (65.6%)	56 (34.4%)	-----

* Chi square test was used, ** Fisher Exact test was used.

Concerning Al-Yarmook teaching hospital, 140 patients were examend with 185 skin lesions on the head and neck (more than one lesions in one patient). The diagnosis of BCC was suspected clinically, excisional biopsies done and the specimens were sent for histopatholgoical study. Among those the diagnosis of BCC was confirmed in 129 (69.7%) lesions (Figure 2).

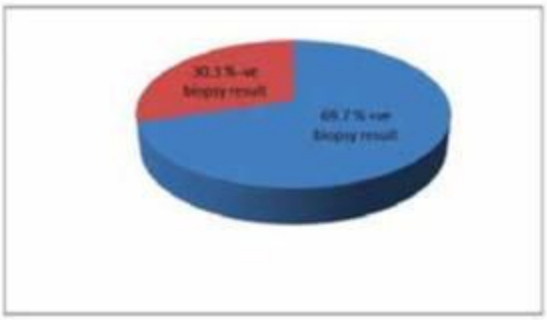

Figure 2: Percentage of positive biopsies in clinically diagnosed patients at Al-Yarmook teaching hospital

Comparing to the result of Erbil dermatology teaching center, 140 patients were examined with 170 skin lesions on the head and neck (more than one lesion in one patient). The diagnosis was suspected dermatoscopically to have BCC, excisional biopsies done and the specimens were sent for the histopatholgoical study. The diagnosis of BCC was confirmed in 163 (95.8%) lesions.

Discussion

In the present work, a cross sectional study design was performed which has the advantages of being easily conducted and requiring less time [13], In both study settings males were more than females (69.3% and 61.9% in Baghdad and Erbil respectively). This can be due to more out door working and sun exposure or more smoking habits among males which can cause repeated trauma and burns to lips. That is consistent with the results of Abbas et al who found that 62.6% of their sample were males [14] with no significant differences noted between the two study settings.

In our study, the mean age of the study sample in Baghdad and Erbil was 66.5 ± 1.5 years and 68.3 ± 1.5 years respectively. Those were rather close to the findings reported by Janjua1 et al [15] where the mean age group of their sample was (61.3 ± 13.07 years), probably attributing that to the fact of the buildup of sun exposure over time.

The percentage of living in rural areas among patients with BCC in our two study settings, was 79.6% in Baghdad compared to only 47.1% in Erbil with highly significant differences (0.000). That might be explained by the differences in temperatures of rural areas between the North and centers of Iraq as a cumulative exposure to sunlight over years is necessary for tumor development [16] and this can probably highlight the significant differences between the two study settings concerning the history of previous work of the patients (0.003).

The lower frequency of BCC among Erbil rural inhabitants may be explained on the basis that rural patients regard initial lesions of BCC as a minor cosmetic

problem with insignificant impact on health and seek medical advice only when lesions become symptomatic or disfiguring. However this come in contrast to the result of Maia et. al [17].

A positive family history of skin cancer was demonstrated in 35 (35.7%) patients and 14 (10.4%) patients in Baghdad and Erbil centers respectively with very highly significant differences between the two study settings (p value =0.000) [18, 19]. Ahluwalia et al found that (40%) of their patients had a positive family history [20], while Abbas et.al [14] registered only (29.4%). Both could be attributed to genetic and environmental factors.

In both study settings, skin type III represented higher percentages (69.3%) and (75.3%) in Baghdad and Erbil respectively, while type I was the least common (2.2%) and (1.5%) in Baghdad and Erbil respectively, pigmentation of skin is considered a protective factor for skin cancer [5].

In our study, the following clinical types of the BCC were found: ulcerative, nodular, superficial spreading, infiltrative and morphea form. In Baghdad, the commonest type was nodular type which was seen in 68 (52.7%) of the lesions and this agree with the result of Lyubomir et al. who found that nodular basal cell carcinoma comprises about (80%) of the cases, while in Erbil the commonest type was ulcerative type which was seen in 74 (45.4%) of the lesions. This high proportion of ulcerative type could be due to the fear from ulcers that make the patient seek for medical help. Significant differences between nodular and ulcerative type among the two study settings was found with p value =(0.005) and (0.000) respectively.

In Baghdad center, they adopted a clinical examination as a provisional diagnosis for BCC with sensitivity of 70% compared to 95.7% sensitivity of dermatoscopical provisional diagnosis that was adopted in Erbil center. Both centers depend on the result of biopsies as gold standard. Chi-square was significant at p* value =<0.05.

Conclusion

Sun exposure is an important risk factor for developing skin cancer specially in those resident in rural areas. Dermatoscopical examination of the skin proved to be a useful real time noninvasive visual aid in the diagnosis of BCC yielding a higher sensitivity for the diagnosis of BCC than that of clinical diagnosis. In the future, histopathological investigation of BCC lesions could be provided only to the control of the treatment.

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