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Patient awareness and sun protection behaviour following excision of basal cell carcinoma

Catherine de Blacam[*], *Clodagh Mc Dermott*, *Conor Sugrue*, *Darren Kilmartin*, *Jack Kelly*

Department of Plastic and Reconstructive Surgery, University College Hospital Galway, National University of Ireland Galway, Ireland

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ABSTRACT

Background: Limited information is available regarding disease awareness and sun protection behaviour in patients previously treated for non-melanoma skin cancer.
Methods: Using a telephone-administered questionnaire, we investigated these characteristics in 250 patients in the west of Ireland who had undergone excision of basal cell carcinomas between January 2011 and December 2012.
Results: Only 28.8% of respondents knew that the lesion they had excised was a BCC and understood that there was a significant chance of developing another similar lesion in the next 3 years. Women and patients under age 65 were significantly better informed about their diagnosis than men ($p = 0.021$ and 0.000 respectively). The majority of patients (71.2%) knew that the overall effect of UV radiation on the skin was harmful and did employ some form of sun protection (avoid midday sun 72%; stay in shade 74%; wear hat 73.6%; wear sunscreen 72.8%). Females were statistically more likely to exercise better sun-protection behaviour ($p = 0.002$). While 76.8% of patients undertook some form of outdoor activity every day, only 22.8% wore sunscreen every day.
Conclusions: Greater efforts should be made to communicate disease details and sun protection implications associated with basal cell carcinoma, especially to male patients. Improved population specific skin cancer awareness may lead to earlier detection and thus decrease both the patient morbidity and economic burden associated with locally advanced basal cell carcinoma.

Introduction

Non melanoma skin cancer (NMSC) is the most common malignancy in humans, with basal cell carcinoma (BCC) accounting for 80% of these lesions.[1,2] A recent systematic review of the worldwide incidence of BCC demonstrated incidence increasing at a greater rate in the UK when compared to the rest of Europe.[3] Although the mortality rate is exceptionally low, management of BCCs represents a

* *Corresponding author*. Department of Plastic and Reconstructive Surgery, University College Hospital Galway, Newcastle Road, Galway, Ireland. Tel.: +353 91 542377; fax: +353 91 544915.
E-mail address: catherinedeblacam@rcsi.ie (C. de Blacam).
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significant economic burden to health services.[4,5] Furthermore, BCCs can be the cause of significant patient morbidity due to their frequent location in visible areas such as the face, head and neck. This situation may be exacerbated in patients who present late as a result of failure to recognise the disease in its early stages.

Patients with a history of NMSC are more at risk of developing a second primary skin cancer (including melanoma) than the general population.[6,7] Having had a BCC excised, the 3-year cumulative risk of developing a further BCC is 44%, which is at least a 10-fold increase in incidence compared with the rate in a comparable general population.[7] An explanation of the diagnosis and advice about skin cancer prevention should be given to all patients treated for NMSC. However, research has shown that the prevalence of such counselling is variable.[8,9]

UV light remains the main avoidable risk factor for all skin cancers.[10] Exposure to UV radiation is principally to the hands, forearms and face, the regions are where BCC development is most common. A number of studies have demonstrated reduced risks of non-melanoma skin cancers (NMSCs) after sun protection.[11,12] Personal sun protective behaviours include avoiding direct sunlight between noon and 3 pm, staying in shaded areas, wearing protective clothing including a hat and applying topical sunscreen.[13] Large population studies have demonstrated variable rates of compliance with sun protection advice amongst the general public,[14–16] but few studies have examined these issues in patients already treated for NMSC.

The aim of the current study was to investigate patients' understanding of the diagnosis of a BCC and to evaluate their sun protection behaviour following this diagnosis.

Methods

The study was approved by the ethics committee at University College Hospital Galway, Ireland. A questionnaire assessing patient's awareness of their diagnosis of a BCC and their current sun protection behaviour was developed based on previously published survey-based studies of post-treatment NMSC patients.[17–19]

Allowing for at least 6 months of follow up, patients who had BCCs excised between January 2011 and December 2012 were identified from a prospectively maintained database. Demographic and disease details were recorded from the database. Patients were contacted by telephone and given appropriate information regarding the study. Oral consent to administer the telephone questionnaire was obtained. Fitzpatrick skin type[20] was recorded as well as lifestyle factors including levels of outdoor activity, frequency of sun holidays and use of sunbeds. Participants were then asked a series of questions regarding knowledge of the lesion which they had excised, their perceived risk of such a lesion recurring in the next 3 years, their current sun protection behaviour and their opinion of UV radiation's effect on skin. Based on their individual responses, an ordinal, Likert-type, score for disease awareness (maximum score = 4) and sun protection (maximum score = 10) was generated for each patient.

The impact of demographics, Fitzpatrick skin type, lifestyle factors and disease characteristics on median levels of disease awareness and sun protection behaviour were analysed using median tests. Mood's median test is a special case of Pearson's chi-squared test, used for analysing Likert scale questions. Rank correlation between disease awareness and sun protection behaviour was calculated using Goodman and Kruskal's gamma, which measures the strength of association of cross tabulated data when both variables are measured at the ordinal level. For all tests, a value of $p < 0.05$ was considered statistically significant. Analyses were performed using the SPSS statistical software package (version 21; SPSS Inc., Chicago, Ill).

Results

Two hundred and seventy eight patients who had BCCs excised between January 2011 and December 2012 were contacted by telephone. Of those, 250 patients completed the questionnaire, giving a response rate of 89.93%. Mean follow up was 18.44 months since excision of BCC. Respondents' demographic and disease characteristics are detailed in Table 1. Responses to questions regarding disease awareness are presented in Table 2. The breakdown of sun protection behaviours is summarised in Table 3.

The impact of demographics, lifestyle factors and disease characteristics on disease awareness and sun protection behaviour were explored using median tests (Table 4). As demonstrated in Fig. 1(a) and (b), female patients were significantly more likely to be aware of their diagnosis and to practice better sun protection behaviour than their male counterparts ($p = 0.021$ and $p = 0.002$ respectively).

There was no significant association between level of disease awareness and level of sun protection (gamma = 0.043, $p = 0.655$).

Discussion

The National Institute for Health and Clinical Excellence (NICE) guidelines for improving skin cancer care highlighted a lack of research in to the needs and experiences of people with skin cancer.[21] Specifically, a limited number of studies have examined disease awareness and sun protection behaviour in patients already treated for NMSC. In this study we investigated knowledge of diagnosis and sun protection behaviour following BCC excision in a rural population in the west of Ireland. We demonstrated that patients generally had poor understanding of their diagnosis, and that their sun protection measures were variable. Such population specific data is necessary for the development of effective public health strategies for skin cancer prevention.

Only 28.8% of patients in the current study were aware that the lesion which they had excised was a BCC. Five percent thought that the lesion was an area of "sun-damaged skin" and a further 5.2% thought that the lesion was a "highly malignant skin cancer". A small number of studies were identified which examined disease understanding in post-operative NMSC patients.[22–24] A qualitative study in the UK found no

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