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Epidemiology of basal cell carcinoma: a 10-year comparative study

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Abstract

Basal cell carcinoma (BCC) is a slow-growing and locally aggressive skin cancer. Despite its high incidence, good quality epidemiological data are sparse. We therefore organised a retrospective study of two separate years' incidence of BCC in one county within the United Kingdom (Dorset) with an interval of 10 years between them. There were 2455 patients in 2006, and 3797 in 2016, who had a new diagnosis with corresponding crude incidences of 459.99 and 491.92/100,000 person-years. The male:female ratio was 1:071 for both years. The head and neck was the most common site, with the cheek, nose, and forehead being the most common subsites. This is a substantial increase in the incidence of BCC, and is much higher than previous reported rates for the UK. More stringent local and national registries are required to monitor the increasing numbers of BCC and help health care systems to plan preventive strategies and provide the most effective treatment. © 2017 The British Association of Oral and Maxillofacial Surgeons. Published by Elsevier Ltd. All rights reserved.

Keywords: Basal cell carcinoma; Non-melanoma skin cancer; Dorset

Introduction

Non-melanoma skin cancers are regarded as the most common cancers worldwide, and in the British Isles, they are responsible for 20% of all new diagnoses of cancer and 90% of all cutaneous malignancies recorded. Basal cell carcinomas (BCC) account for an estimated three-quarters of all non-melanoma skin cancers, and the incidence is increasing at an exponential rate among regions where white-skinned people are dominant such as North America, Europe, and Australia.¹ Despite the high incidence of BCC, good quality epidemiological data in the United Kingdom (UK) are sparse, possibly because in the past cancer registries have been non-existent or incomplete, lesions have been treated without histological analysis, and record keeping has been

imprecise. Consequently, an estimated 30–50% of all BCC have been under-reported.^{2,3}

A crude incidence rate of between 171.9 and 201.7 per 100 000 person-years has been previously reported in the UK.^{4,5} Similar rates have been shown in other European countries, but the increase in the number of new BCC reported/year is greatest in the UK.¹

The primary aims of this study, therefore, were to analyse the demographic of patients diagnosed with BCC, and to record the distribution of the histological subtypes and the anatomical sites of presentation across the county of Dorset in 2006 and compare these with equivalent data from 2016 (Figs. 1 and 2).

Material and Methods

Ethics approval was obtained from Poole Hospital NHS Foundation Trust and Dorset County Hospital NHS Foundation Trust before the data were collected. All information

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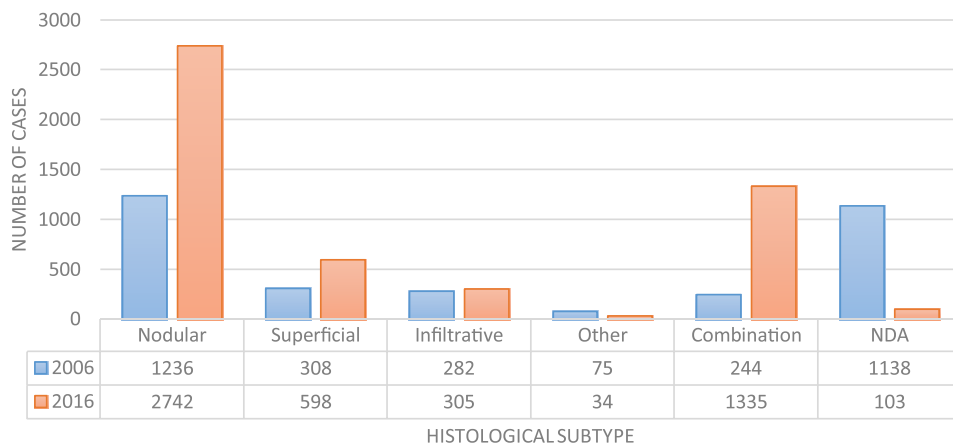


Fig. 1. Comparison of histological subtypes between 2006 and 2016.

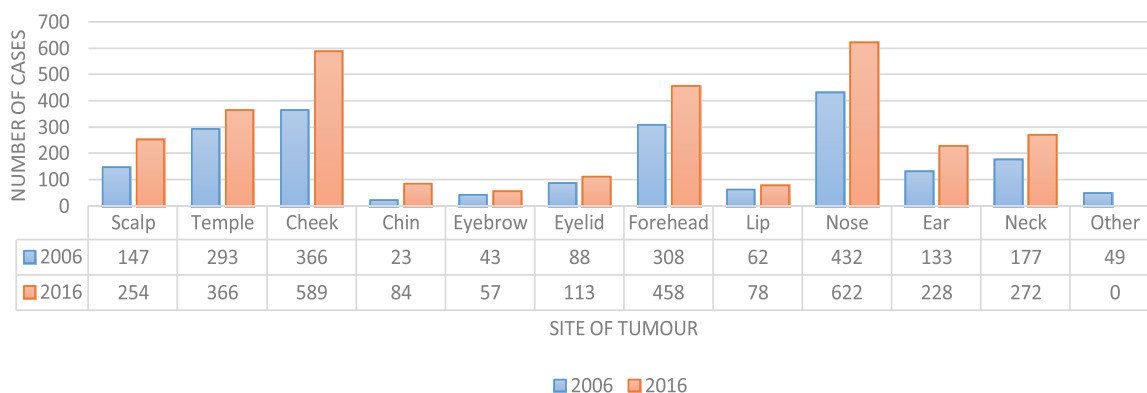


Fig. 2. Subsites of recorded tumours in the head and neck.

was obtained in accordance with local guidelines and stored anonymously on a secure database. Each individual hospital laboratory maintains a prospective registry of histological reports of all biopsies completed within the county.

All patients with a histological diagnosis of BCC in the county of Dorset between 1 January 2006–31 December 2006 and from 1 January 2016–31 December 2016 were identified from this registry. The data from each biopsy report were then abstracted from the patients’ electronic records and analysed.

Several different lesions within an individual specimen were regarded as separate BCC. To ensure that there were no duplicates, lesions that were biopsied before being excised were considered as one lesion. In addition, if it was not clear from the histological report, letters, and notes whether further excisions were of the same lesion, the BCC was considered only once. If one BCC was excised on several occasions, histological classification from the largest excision was used to categorise that lesion. If lesions had more than one concurrent histological classification it was classified as a “combination” lesion. If the diagnosis of BCC was uncertain, the lesion was not considered as part of the results.

The histological classification was based on the WHO classification⁶ and divided into the following subtypes:

nodular, superficial, infiltrating, combination, other, and not known.

Statistical analysis

The crude incidence rate was recorded as the number of new cases of BCC during the study period divided by the total number of person-years at risk (total population). Figures are expressed as number/100,000 person-years.

Results

There was a reported incidence of 3283 new cases of BCC in 2006 among 2455 patients (1433 male and 1022 female, crude incidence rate 459.99). The mean (range) age was 73 (14–103 years). The mean (range) ages of male and female patients were 73 (14–103) and 72 (26–96), respectively. Of the affected sample, 1860 were over the age of 65 years (72%). Most patients only had one BCC (n = 1865). Patients with multiple BCC usually had 2–4 lesions, but one patient had eight independent lesions.

In 2016 there were 5117 cases of BCC in 3797 patients (2214 male and 1583 female, crude incidence rate 491.92).

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