CED
Clinical and Experimental Dermatology

The incidence of basal cell carcinoma in the under-30s in the UK

A. M. Skellett, J. Hafiji,* D. C. Greenberg,† K. A. Wright† and N. J. Levell

*Dermatology Department, Norfolk and Norwich University Hospital NHS Foundation Trust, Norwich, UK; *Dermatology Department, Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK; and †Eastern Cancer Registration and Information Centre, Shelford Bottom, Cambridge, UK*

doi:10.1111/j.1365-2230.2011.04246.x

Summary

Background. Basal cell carcinoma (BCC) is the commonest cancer in many countries, but the current incidence in young people from the UK is unknown.
Aim. To ascertain a recent incidence of BCC in the under-30 population in the UK.
Methods. Cancer registry data from part of the Eastern Region of the UK was analysed for two periods: 1981–1989 and 1998–2006. Case notes were examined for a cohort of the patients from 1998 to 2006.
Results. The incidence of BCC increased from 0.73 to 1.79 per 100 000 in those aged < 30 years over the study period. More than half (55%) of BCCs were on the head and neck, and the most common histological subtype was superficial BCC (38%).
Conclusions. The reported incidence of BCC in those aged < 30 years has increased by 145% during this period, corresponding to an average annual increase of 8.53%. This may be partially due to earlier presentation and to increased use of surgical treatments.

Introduction

Basal cell carcinoma (BCC) is the commonest cancer in Europe, Australia and the USA.[1] In the US and Australia, the incidence of BCC has roughly doubled every 14 years.[2,3] A 3% annual increase in BCC was reported in the UK from 1996 to 2003,[4] and a rise in tumour incidence in the UK has been predicted up to the year 2040.[1] Incidence increases with age (median age 69 years) although BCCs are also found in the young population. BCCs in young people may be due to Gorlin syndrome (GS; estimated prevalence 1 in 55 600 in the UK[5]) or rarely to albinism, sebaceous naevus (SN), xeroderma pigmentosum, Bazex syndrome, Rombo syndrome, arsenic exposure or previous radiation therapy. The incidence of BCC in young people from the UK has not been reported since 1989,[6] thus we undertook to carry out a new survey in the under-30 population.

Correspondence: Dr Anne-Marie Skellett, Dermatology Department, NNUHFT, Colney Lane, Norwich, NR4 7UY, UK
E-mail: anne.skellett@nnuh.nhs.uk

Conflict of interest: none declared.

Accepted for publication 16 August 2011

Methods

Data from the Eastern Cancer Registration and Information Centre (ECRIC), collected during the periods 1981–1989 and 1998–2006, were used to identify changes in the incidence of BCC in those aged < 30 years and in all age groups, in part of the Eastern Region of the UK (Norfolk, Suffolk and Cambridgeshire: population 2 287 000). All BCC histology results from each hospital trust in the region were coded monthly using the *International Statistical Classification of Diseases and Related Health Problems*, 10th revision, and the *International Classification of Diseases for Oncology*, 2nd revision (ICD 10/ICDO-2), and recorded by registry staff. Data were entered onto a live Oracle database. Only the first BCC for each patient was recorded. The live database had numerous validations built into it at the data-entry level to ensure recording of data was accurate. A subgroup analysis of risk factors and histological subtype was performed by looking at all available hospital notes from the patients identified from four centres (Norwich, Cambridge, Bury St Edmunds, and Great Yarmouth) between 1998 and 2006.

The incidence was calculated as numbers per population aged < 30 years. To make comparisons with previous reported UK data, the incidence was also calculated as numbers of BCC in those aged under 30/total population of all ages.

Results

From 1998 to 2006, 94 patients (41 male, 53 female; median age 26 years, range 10–29 years, interquartile range 21–28) with BCC were identified from the database. Of these, 28 of these were identified from primary care and the remainder from secondary care. The incidence rate of BCCs in the under-30s (calculated as cases per under-30 population) in the Eastern region increased from 0.73 per 100 000 in 1981–1989 to 1.79 per 100 000 in 1998–2006, thus it increased by 145% between the two time periods, giving an incidence rate of (8.53%/year. Over the same period, the reported BCC incidence in all age groups (calculated as cases/total population) in the Eastern region increased by 134%, from 57.9 per 100 000 in 1981–1989 to 135.7 per 100 000 in 1998–2006. During this period, the proportion of total BCCs found in the under-30s changed from 0.54% to 0.47%. The commonest site for BCCs was the head and neck (55%) (Fig. 1).

Of 37 sets of case notes from the 1998–2006 period, 29 were available for the subgroup analysis of risk factors and histological type. The cases ranged from February 2000 to August 2006. Of these 29 patients, 24% had identifiable risk factors for developing a BCC (14% GS and 10% SN). The histological types were superficial (38%), nodular (31%) and multiple (7%); 24% had no specified type.

Discussion

This study shows that the incidence of BCC in the under-30s in the Eastern Region of the UK increased by 145% between the periods 1981–1989 and 1998–2006. Over half (55%) of the BCCs were on the head and neck, and the commonest histological subtype was superficial BCC (38%).

A different method of incidence calculation was used in a previous UK paper from the 1980s. In that study, the crude incidence of BCCs in those aged 15–34 years (excluding those with GS) was calculated using the total population of all ages as the denominator to give an incidence of 0.44 per 100 000 population.[6] Using this method on our data, the Eastern England incidence was

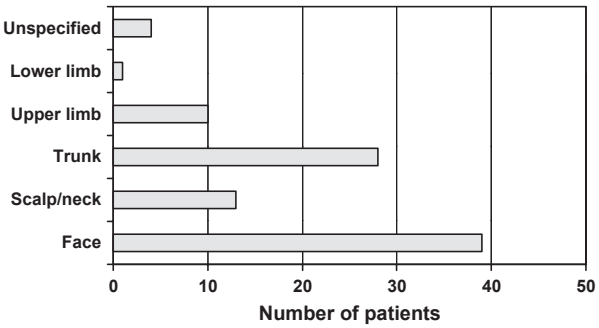

Figure 1 Site of basal carcinomas in patients aged < 30 years in East Anglia during the period 1998–2006.

0.31 per 100 000 during 1981–1989 and 0.64 per 100 000 during 1998–2006.

We found that the commonest site for BCC in the under-30s was the head and neck (Fig. 1), with 55% of cases in the under-30s, compared with the reported 80–90% in this area in the whole population.[7] We also found a large proportion (29%) on the trunk. A study from Minnesota reported similar findings (58.6% of BCCs on the head and neck in the under-40s).[7] By contrast, a study from the Northern England Cancer Registry covering the period 1979–1989 reported that 85% of BCCs were located on the head and neck in those aged < 34 years.[6]

We found relatively more superficial and fewer nodular BCCs in our under-30 population, in contrast to previous studies that reported that nodular BCC was more common than superficial BCC in young patients.[7,8]

In the subgroup analysis of the proportion of young patients with risk factors for BCCs, we found an incidence of 1 per 59 000 population for GS (similar to previous reports,[5]), and 76% patients had no identifiable risk factor for BCC.

The reported increase in incidence of BCC in young people may be real or spurious. Increasing use of therapeutic excision surgery rather than cryotherapy or topical treatments without biopsy may have increased reporting based on histological records. Earlier presentation and recognition of slow-growing trunk lesions may have increased the numbers of the under-30s presenting, as the incidence of BCC rises with age. However, increased ultraviolet exposure to the trunk due to the increased popularity of holidaying in sunny climates and the increased use of tanning beds may have resulted in a real increase in incidence.[7]

Conclusion

Compared with BCC in the older population, BCC in young people in the Eastern Region of the UK presents more commonly as superficial lesions on the trunk. Although the reported incidence in BCC in young people has increased by 145% over 17 years, this finding, like the reported increases in melanoma incidence,[9] should be interpreted with caution.

What's already known about this topic?

• The BCC incidence in young people from the UK has not been reported since the 1980s.

What does this study add?

• The reported incidence of BCCs in those aged under 30 from the UK has increased by 145% over two decades.
• BCCs in people aged < 30 years present more commonly on the trunk and are more likely to be of the superficial histological type compared with BCCs in older patients.

References

1 Telfer N, Colver G, Molton C. Guidelines for the management of basal cell carcinoma. *Br J Dermatol* 2008; **159**: 35–48.
2 Chuang T, Popescu N, Su W *et al.* Basal cell carcinoma. A population-based incidence study in Rochester, Minnesota. *J Am Acad Dermatol* 1990; **22**: 413–17.
3 Marks R, Staples M, Giles G. Trends in non-melanocytic skin cancer treated in Australia: the second national survey. *Int J Cancer* 1993; **53**: 585–90.
4 Bath-Hextall F, Leonardi-Bee J, Smith C *et al.* Trends in incidence of skin basal cell carcinoma. Additional evidence from a UK primary care database study. *Int J Cancer* 2007; **121**: 2105–8.
5 Evans D, Ladusans E, Rimmer S *et al.* Complications of the naevoid basal cell carcinoma syndrome: results of a population based study. *J Med Genet* 1993; **30**: 460–4.
6 Cox NH. Basal cell carcinoma in young adults. *Br J Dermatol* 1992; **127**: 26–9.
7 Christenson L, Borrowman T, Vachon C *et al.* Incidence of basal cell and squamous cell carcinomas in a population younger than 40 years. *JAMA* 2005; **294**: 681–90.
8 Scrivener Y, Grosshans E, Cribier B. Variations of basal cell carcinomas according to gender, age, location and histopathological subtype. *Br J Dermatol* 2002; **147**: 41–7.
9 Levell NJ, Beattie CC, Shuster S, Greenberg DC. Melanoma epidemic: a midsummer night's dream? *Br J Dermatol* 2009; **161**: 630–4.

