The role of limited life expectancy in personalised treatment decisions: 1 in 6 patients aged 80+ with a basal cell carcinoma die within 2 years of diagnosis in England

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Dear Editor, Basal Cell Carcinoma (BCC) is the most common form of skin cancer in England, accounting for 70.9% of all diagnosed skin cancers, with 159,178 new cases reported in 2019(1). In elderly patients, the balance between treatment benefits and risks becomes more complex due to factors such as comorbidities and limited life expectancy (LLE) (2,3). Schofield (2016) highlighted that the management of skin cancer in frail elderly patients requires careful consideration, questioning the necessity of aggressive treatments for non-life-threatening tumours and advocating for a more individualised approach that considers patient frailty and life expectancy(4). Our study, using England-specific data, aims to assess these estimates for the first time in over a decade.

Data from the National Disease Registration Service (NDRS), England were extracted from a previously published report by Venables et al. and the openly available Get Data Out website, which provides national statistics(1)(5). Both Net Survival and overall Kaplan-Meier survival (KM) estimates are reported with 95% confidence intervals (CI). KM survival represents the time between a first BCC diagnosis and last vital status date (i.e. death, alive, or unknown). Net survival (NS) is a type of relative survival where the survival of patients with BCC is compared against lifetables which measure expected survival in the general population, based on age, sex, index of multiple deprivation (IMD), and region. In elderly patients, KM survival is influenced not only by the BCC diagnosis but also by comorbidities, which may play a more significant role in outcomes.

However, survival data by age were only available based on tumour site, with facial BCCs representing the largest cohort. Therefore, due to the large sample size and availability of data, we chose facial BCC data from 2013-2015 to illustrate age-specific survival. These estimates used for survival analysis only include the first recorded tumour for each patient. However, incidence counts for these tumours also included subsequent tumours at this site. Life expectancy (LE) figures for England, as provided by the Office for National Statistics (ONS), are presented for the most recent period (2020-2022) (1). Although COVID-19 may

have influenced LE during the study period, our analysis relies on the most recent ONS data, with further investigation needed on its impact.

Between 2013-2019, 1.04 million BCCs were registered in England. The proportion of BCC patients aged over 80 increased from 28.4% in 2013 to 31.5% in 2019. KM for first facial BCC diagnoses at 5 years was 43.7% for patients aged 80+, whereas 5-year net survival for BCC was ≥100%. This illustrates the need for treatment decisions that consider both survival probabilities and patient frailty (Table 1).
For BCC, net survival is 100% since the condition is rarely fatal and perhaps due to a healthy outdoor lifestyle in this cohort resulting in greater UV exposure, education or due to the exclusion of more frail patients with a BCC not having histological confirmation and therefore being excluded from NDRS data(6). In contrast, KM represents survival from all causes of death following diagnosis and therefore reduces with age(7).

Being at an increased risk of frailty, patients over the age of 85 also face a higher risk of complications from surgical interventions such as bleeding, delayed healing, infection, sepsis and even mortality. Schofield et al. (2016) indicate that mortality rates for older adults with skin cancer are influenced more by overall health status than by the cancer itself, which underscores the need for personalised treatment approaches(4). Managing frail elderly patients involves balancing survival benefits with the risks of surgical complications such as infection and delayed healing.

Current guidelines lack explicit recommendations for treating patients with frailty and LLE. We identified that the use of the terms like ‘frailty’, ‘limited life expectancy’, ‘conservative’, ‘observation’, ‘watch’, ‘elderly’ and ‘old’ are not included to any appropriate degree in national and international BCC guidelines. This highlights a gap in practice, worldwide, that needs to be addressed through updated and more relevant guidelines for ageing populations.

Our data have shown that of patients aged over 80, one in six patients die within 2 years, over a quarter within 3 years of diagnosis, and nearly half within 5 years. These findings underscore that many elderly patients in the UK are likely being over-treated for BCC and receiving complex surgery that may offer minimal benefit given their LLE. Conversely, these patients are more likely to experience the complications and risks associated with treatment. Our findings highlight the need to integrate frailty and comorbidity assessments, such as the Charlson Comorbidity Index, Rockwood frailty, or Clinical Frailty Scale, into BCC treatment decisions(8). This report updates previous findings from the USA and highlights the urgent need to reassess our approach, ensuring that we focus not just on tumour-related factors but also on patient-related factors when considering management options.

Word count: 789
References: 8

Tables/Figures: 1

Conflicts of interest: B.v.B. is an employee of the British Association of Dermatologists.

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Metric	Value
Median Age of Onset for first BCC, 2013-2015	71 years (IQR 62-80)
% of BCC Patients Aged 80+, 2013-2019	30.0%
5-Year BCC Net Survival, All ages, various sites, 2013-2015	≥100%
5-year BCC Overall Survival, All Ages, First BCC, 2013-2015, % (95% Confidence Interval)	1 year: 97.2% (97.2-97.3) 2 years: 93.9% (93.8-93.9) 3 years: 90.3% (90.2-90.4) 5 years: 83.1% (82.9-83.2)
5-year BCC Overall Survival, First Facial BCC, Age 80+, 2013-2015, % (95% Confidence Interval)	1 year: 92.9% (92.4-93.4) 2 years: 83.7% (83.0-84.4) 3 years: 74.0% (73.5-74.4) 5 years: 56.3% (55.8-56.9)
Total BCCs Diagnosed, 2013-2019	1,042,356
BCCs Diagnosed in Patients Aged 80+, 2013-2019	312,224
Based upon overall survival, of the 80yrs+ cohort 2013-2019, how many would be expected to die at	1 year: 22,167 (7.1%) 2 years: 50,892 (16.3%) 3 years: 81,178 (26.0%) 5 years: 136,441 (43.7%)
Life Expectancy (ONS Data, 2020-2022)	At 80 years: 8.1 years (males), 9.5 years (females) At 85 years: 5.7 years (males), 6.7 years (females) At 90 years: 3.8 years (males), 4.5 years (females)

Table 1: *Outcomes for BCC Diagnoses, England*