

Long-term evaluation of recurrence after photodynamic therapy with topical methyl aminolevulinate for non-melanoma skin cancer: a hospital-based study

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Introduction & Objective

- Several factors may influence the decision to pursue nonsurgical modalities for the treatment of non-melanoma skin cancer (NMSC)
- Topical photodynamic therapy (PDT) is a non-invasive alternative treatment reported to have a high efficacy in Bowen's disease (BD), superficial basal cell carcinoma (sBCC) and in thin nodular BCC (nBCC); However, long-term follow-up studies are scarce

Objective: To evaluate the long-term efficacy of PDT with topical methyl aminolevulinate (MAL) for the treatment of BD and BCC in a dermatology department

Methods

- Patients diagnosed with BD or BCC treated with MAL-PDT from the years 2004 to 2008
- Treatment protocol: tumour preparation before MAL 160 mg/g was applied; two MAL-PDT sessions one week apart; illumination with red light (630 nm), at a dose of 37-40 J/cm² for 8'20''
- Clinical records were retrospectively reviewed
- Descriptive (chi square tests) and survival analysis (Kaplan-Meier and Cox regression models)

Results

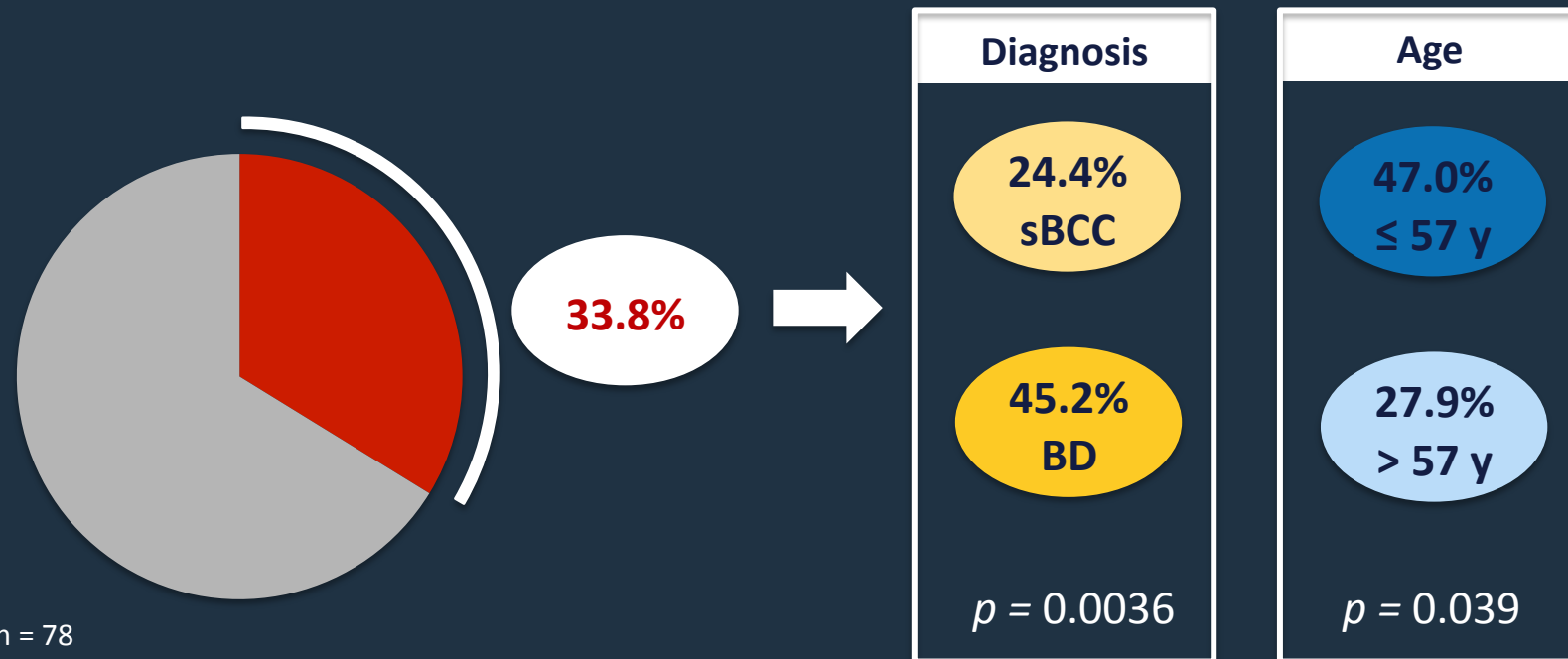
Table 1. Characteristics of patients and tumours.

- 68 patients
- A total of 78 treated tumours

Characteristic	
Patients	
Gender, male:female	35:43
Age, years, median (range)	71 (30-92)
Diagnosis (%)	
BD	31(39.7)
sBCC	45 (57.7)
nBCC	2 (2.6)
Biopsy (%)	
Yes	53 (67.9)
Localization (%)	
Face	23 (29.5)
Scalp	3 (3.8)
Trunk	29 (37.2)
Extremities	23 (29.5)
Previous (pre)malignant lesions (%)	48 (61,5)
Tumour area cm ² , median (range)	5 (0.25-100)
Follow-up, median months, median	43,5

Results

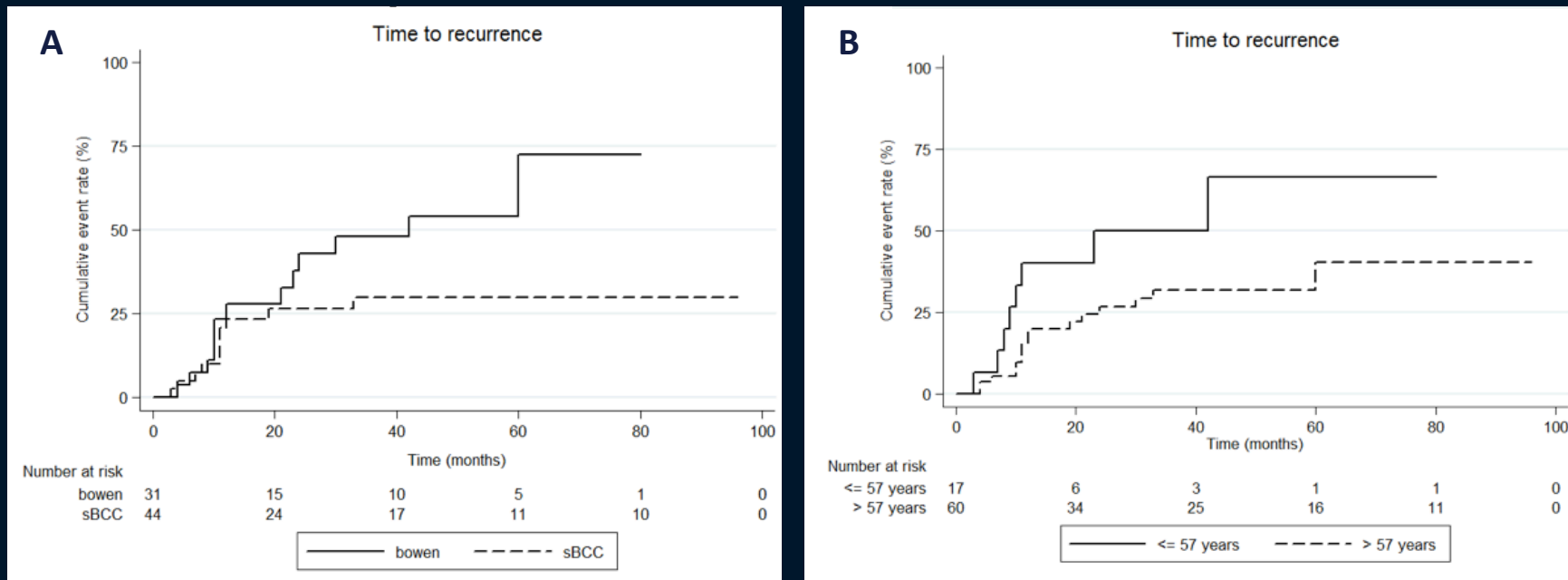
Figure 1. Recurrence rates: total, diagnosis and age-related (cut-off of 57 years old) recurrence rates.



Both age and diagnosis were independent prognostic factors for recurrence, with significantly higher estimated recurrence rates in patients with BD ($p=0.0036$) or younger than 58 years old ($p=0.039$). Differences in recurrence rates according to sex, tumour area and localization were not statistically significant.

Results

Figure 2. Estimated time to recurrence by diagnosis (A) and age group (B).



The risk of recurrence (hazard ratio) was 2.4 times higher in patients with BD compared to superficial BCC (95% CI:1.1-5.3; $p=0.033$), and 2.8 times higher in patients younger than 58 years old (95% CI: 1.2-6.5; $p=0.02$).

Discussion

- In the studied population, estimated recurrence rates are higher than those expected from available literature, either for sBCC and BD
- Long-term follow-up reports are scarce in literature (especially for BD), and direct comparison between studies is limited
- Higher recurrence rates for NMSC and in younger individuals might be explained by patients' characteristics: actinic damage since younger ages, high burden of malignant and pre-malignant skin disease (hence with follow-up at an Oncology Center), and tumours of considerable size

Conclusions

- BD, as an in situ squamous cell carcinoma, has a higher tendency to recur than sBCC after MAL-PDT
- Despite greater cosmesis and minimally invasive, PDT-MAL might present with lower efficacy rates in high-risk patients, underlying the need for sustained long-term follow-up
- Further long-term studies are warranted