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Abstract

The burden of keratinocyte cancer: occurrence, multiplicity and predicting risk

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The costs of diagnosing and treating basal cell carcinomas (BCC) and squamous cell carcinomas (SCC) are the highest of all cancers in Australia. However, information regarding incidence, multiplicity and risk are scarce as keratinocyte cancers (KCs) are not captured by most registries. To address these gaps, we initiated the QSKIN Study in 2010 recruiting 43,794 Queensland residents from a population register (participation 24%). Participants self-completed a baseline survey recording information on residential history, sun exposure, phenotype and medical and family history. We identified keratinocyte cancers through linkage to the national insurance register, confirming histopathology where possible. During the first three years of follow-up, 6936 (17%) participants had at least one KC excised; 1626 (4%) had 3 or more excisions. Of lesions with known histology, there were 9713 BCCs (in 4080 people) and 3505 SCCs (in 1782 people). We developed a tool to predict the risk of developing KC using backwards stepwise logistic regression models. The primary model retained terms for 10 items, including history of >20 prior skin cancers excised (OR 8.6), >50 skin lesions destroyed (OR 3.4), age >70 years (OR 3.5) and fair skin color (OR 1.8). Discrimination was high (Area under ROC 0.80, 95%CI 0.79-0.81) and the model appeared well calibrated. Among those reporting no prior history of skin cancer, a model with 10 factors (including age, sex, ethnicity and phenotypic factors) predicted KC events with reasonable discrimination (AUROC 0.72, 95% CI 0.70-0.75). The tool is undergoing external validation in primary care skin cancer clinics.