Skin cancer burden in lung transplant recipients

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Skin cancer burden in lung transplant recipients: we need to do better!

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Solid organ transplant recipients (SOTRs) are at significantly increased risk for multiple skin cancers.[1] Skin cancer multiplicity matters: immunosuppressed patients with multiple squamous cell carcinomas (SCCs) have poorer outcomes.[2] Routine skin cancer surveillance and preventative strategies have been widely adopted in many centres, but current practice may fall short for lung transplant recipients (LTRs).

In this issue of the *BJD*, Way and colleagues[3] quantify the burden of new skin cancers developing annually in LTRs, and the numbers are staggering. This study comes from Queensland, Australia, arguably the 'skin cancer capital' of the world, but also a region with sophisticated strategies to combat skin cancer in the general population, and with high levels of education among patients and general practitioners.

High incidence rates for keratinocyte cancers (KCs) in SOTRs have been extensively reported, usually based on first primary KC. Here the authors assess total burden of KCs in a prospective, population-based study. Eligibility was restricted to patients stably transplanted for at least 1 year in whom systemic retinoids or topical therapies had not been initiated in the previous 6 months and 125 LTRs in Queensland completed the study. By choosing a population-based study and by systematically cross-checking both public and private pathology databases for confirmation of interval skin cancers, these authors established age-standardized incidence rates of 447 per 1000 patient-years for SCC and 281 per 1000 person-years for basal cell carcinoma (BCC). This is more than double the age-standardized incidence rates for LTR SCC when based on first primary SCC alone (201 per 1000 person-years) and is 77 times higher than the estimated SCC incidence rate in the general Queensland population.

Why do LTRs have such a high skin cancer risk? As in cardiac transplantation, LTRs need greater levels of immunosuppression than renal or liver transplant recipients. This intense immunosuppression interacts with previous and ongoing solar ultraviolet (UV) exposure, creating a perfect storm for skin carcinogenesis. LTRs have historically received azathioprine as part of their maintenance immunosuppressive regimen, although mycophenolate mofetil is now preferentially used. Many LTRs also receive voriconazole for treatment or prevention of fungal lung infections. Like azathioprine,[4,5] voriconazole is photosensitizing to UVA[6] and contributes to carcinogenesis both directly and indirectly through mechanisms that include generation of reactive oxygen species.

When examining risk factors associated with skin cancer multiplicity, Way and colleagues found that ever use of voriconazole increased risk of SCC (not BCC) twofold, and treatment with voriconazole for 4 or more months increased SCC risk 4·5-fold. Thus, regimens that include prophylactic voriconazole will compound the already very high risk for cutaneous SCC in LTRs.

As dermatologists, we are ideally placed to provide dedicated OTR skin clinics for long-term skin surveillance, rapid access for urgent problems and skin cancer risk reduction management. Such opportunities are often limited during transplant clinic consultations, in which many other clinical problems compete for the transplant team's time and resources. Nonetheless, we should be aiming to develop skin cancer prevention programmes for routine delivery within transplantation clinics. Simple protocols, ideally using multimodal methods, could be created to support best practice in sun protection and skin cancer education. Such approaches are a focus of recent research efforts and may be a starting point for addressing the huge and growing burden of OTR skin cancer so dramatically highlighted in this study.

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