25 MALIGNANCY AFTER HEART TRANSPLANTATION

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In the current era, approximately 50% of heart transplant (HTx) recipients survive more than 13 years, with an increasing population of patients surviving beyond 20 years. Previous studies have suggested that HTx recipients are at particularly high risk of developing *de novo* malignancies due to more intensive immunosuppression. The perception of higher risk for post-transplant lymphoproliferative disease (PTLD; e.g. lymphoma) associated with OKT3 led to a fall in the use of OKT3 during the 1990s. Main advances in post-HTx management with probable reduction of risk for neoplasia are introduction of (1) antiviral prophylaxis, (2) induction agents that are more specific in their actions and (3) the mammalian target-of-rapamycin inhibitors (mTORs).

Reported incidence of post-transplant malignancy in HTx recipients ranged from 2.3% to 27% and skin malignancies represented up to 50% of post-transplant malignancies. The second most common cancer in HTx recipients was PTLD. A retrospective analysis included 17 587 adult HTx recipients who were followed for up to five years post-operation.¹ The incidence of *de novo* malignancy was 10.7% one to five years after transplantation, with higher prevalence in the contemporary era.

Considering the increased burden of *de novo* malignancy in HTx recipients, additional effort needs to be directed towards formulating evidence-based cancer screening recommendations and optimised immunosuppression protocols for these patients. It may be reasonable to consider the risk of *de novo* post transplant malignancy in older patients when making decisions regarding candidacy for HTx versus left ventricular assist device as destination.

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26 CARDIOMEMS™ IN VAD PATIENTS

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Successive generations of left ventricular assist devices (LVADs) have been associated with improvement in patient outcomes and reduction in device-related complications.¹ Beyond mortality reduction, quality of life improvement and reduction in hospitalisation are increasingly focused upon. Following LVAD implantation, the number of admissions per year is highest in the first year.^{2–3} In fact, within 30–90 days, hospitalisation for volume overload – indicative of acute worsening heart failure, haemodynamically significant arrhythmias or imbalance of haemodynamics due to suboptimal LVAD pump settings – could account for 11%–24% of admissions.^{2–4–5}

To improve our understanding of mechanisms related to VAD therapy, investigators have reviewed data from LVAD patients with pre-operatively placed implantable pulmonary artery pressure (PAP) monitors (CardioMEMS™). Studies have shown that implantation of PAP monitors can assist in management of haemodynamics, thus potentially reducing hospitalisation in a portion of LVAD patients with volume overload. Although retrospective analyses of PAP monitor data suggested that PAP could be effectively reduced by LVAD implantation,⁶ there remains a lack of prospective data to support routine use of PAP monitoring in LVAD patients to guide haemodynamic management. In the ongoing Intellect2, a multi-centre prospective observational 6 month follow-up study of 100 LVAD patients (<https://clinicaltrials.gov/ct2/show/NCT03247829>), CardioMEMS will be evaluated for its effects on haemodynamics optimisation to impact on patients' functional status, quality of life and hospital medications.

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27 LOWER LIMB ISCHAEMIA IN PATIENTS UNDERGOING VA ECMO

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The incidence of lower limb ischaemia ranges from 11%–52% in patients receiving VA ECMO. The reported rate of amputation ranges from 2%–10%. Patients with vascular complications related to lower limb ischaemia carries a higher risk of death. Antegrade perfusion of superficial femoral artery via a distal perfusion catheter (DPC) has been shown to be an effective therapy to reduce the incidence of lower limb ischaemia. However, the clinical indications remain largely unclear with various reported strategies. While the benefits remain largely unknown, there is increasing experience on the use of near-infrared reflectance

spectroscopy, or NIRS, in the monitoring of lower limb perfusion during ECMO therapies.

Strategies alternative to DPC include end-to-side graft, posterior tibial artery retrograde perfusion, axillary cannulation and central sports mode. Novel bidirectional perfusion cannula may appear as a future promising option.

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28 SHOULD WE BE USING DIGOXIN IN 2018?

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Digoxin is often used in the management of patients with heart failure (HF) with or without atrial fibrillation (AF). There is sound biological rationale for the use of digoxin, but the data on clinical outcomes with digoxin use in this patient population are conflicting. There is a single adequately powered randomised trial of digoxin in patients with HF in sinus rhythm.¹ This trial showed a small but significant reduction in the rate of hospitalisation due to HF with the use of digoxin, when compared to placebo, among patients treated with ACE inhibitors and diuretics. There was no effect on mortality.¹ On the contrary, there are numerous secondary analyses of observational data from randomised trials which suggest that there may be an increased risk of death from using digoxin, both in patients with HF, those in AF, or both.² However, observational data on digoxin use suffer from treatment bias (confounding by indication), as the sickest patients are the ones who are prescribed digoxin. Propensity matched analyses have been attempted to overcome the effect of this bias with conflicting results.^{2–3} However, it is likely that because the magnitude of this bias is large, no amount of statistical adjustment can yield reliable effect estimates. This highlights the need for large, randomised trials of digoxin.³

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29 MANAGEMENT OF PULMONARY HYPERTENSION IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIENTS

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Pulmonary arterial hypertension (PAH) is a complex and devastating disease. According to a longitudinal United States-based registry, connective tissue disease (CTD) accounted for more than 50% of all patients with PAH, in which systemic sclerosis comprised the largest CTD-related PAH.¹ In contrast to Western countries, systemic lupus erythematosus (SLE) is a more common CTD than systemic sclerosis in the Asia-Pacific region.² A cohort study from China has shown that SLE, instead of systemic sclerosis, comprised the largest proportion of all CTD-related PAH.³ The prevalence of PAH in SLE is estimated at 0.5%–17.5%.⁴ The pathogenesis of PAH involves multiple mechanisms including vasculitis, *in situ* thrombosis to interstitial lung disease which may all increase pulmonary vascular resistance and lead to right heart failure. The leading risk factors for the development of PAH in SLE patients include Raynaud's phenomenon, anti-U1 RNP antibody and anti-cardiolipin antibodies positivity. Since PAH is potentially life-threatening, early detection is crucial to improve the outcomes of this condition. Currently, the diagnostic algorithm for PAH in SLE patients follows that of international guidelines. Diagnosis is confirmed by right heart catheterisation. Treatments are similar to the therapeutic interventions for patients with idiopathic PAH. Since inflammatory and dysregulated immune components may play a major role in the pathogenesis of PAH in SLE, glucocorticoids and immunosuppressive therapies including cyclophosphamide are used, although the immunosuppressive therapy trials were small, uncontrolled studies only. Regular follow-up with prognostic evaluation and risk assessment should be performed and the treatment should be individualised accordingly.

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30 ADVANCES IN MEDICAL AND INTERVENTIONAL TREATMENTS FOR CTEPH

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Pulmonary endarterectomy is the standard care for patients with chronic thromboembolic pulmonary hypertension (CTEPH), however, about 40% of them are inoperable.