Halfway PhD review
Clinical consequences of Immunosuppression after Heart Transplantation with reference to osteoporosis and renal function

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ABSTRACT

Background: Osteoporosis is commonly found in heart transplantation (HT) recipients, and may further develop as an adverse effect of the immunosuppressive therapy, as well as being a consequence of various factors that are associated with heart failure prior to HT. Chronic kidney disease (CKD) is furthermore, like osteoporosis, frequently found in the HT patient population, and may also arise as a side-effect of the immunosuppressive therapy.

Aims and Method: We sought to describe the bone mineral density (BMD) evolution, predictors of osteoporosis, survival, as well as incidence of osteoporosis in relation to CKD up to 10 years after HT. The project was conducted as a retrospective cohort study including patients who underwent HT at an age of at least 20 years between January 1988 and June 2016 at Skåne University Hospital in Lund. The project was approved by the local ethics board in Lund (approval nos. 2010/114, 2011/777, 2014/92).

Preliminary results:
Pre-transplant bone strength (measured as bone mineral density) significantly influenced the risk of developing osteoporosis up to 10 years after HT 1.

CKD stadium 3 or worse before HT was associated with a greater gain in BMD after HT compared with patients with CKD stadium less than 3 or normal kidney function, and was not associated with osteoporosis 2.

Impairment of bone strength is common after HT, supporting that optimisation of the maintenance immunosuppressive therapy is needed, as well as the establishment of specific clinical guidelines for management and prevention of post-HT osteoporosis, to reduce fracture-related morbidity and mortality after HT 3.

Significance: Osteoporosis increase the risk of bone fractures. Not only do fractures increase morbidity, but also mortality rates, which emphasises the importance of early detection and reduction of the risk factors for osteoporosis in HT recipients.

Publications

Appendix
PM 63: "Osteoporosprophylax inför och under uppföljning efter hjärttransplantation", Skånes Universitetssjukhus, Division 3, VO Hjärt- och Lungmedicin, Hjärtsvikt- och klaffsektionen, Hjärtmottagningen, Hemodynamik Lab.