

Endomyocardial biopsy for monitoring pediatric heart transplant patients: 11 years' experience at a Turkish Heart Center

Erdogan I. (1), Varan B.(1), Surucu M.(2), Tokel K.(1), Sezgin A.(3)

Department of Pediatric Cardiology Faculty of Medicine, University of Başkent, Ankara-Turkey (1);

Ankara Children's Hematology Oncology Education and Research Hospital, Ankara (2); Department of

Cardiovascular Surgery, Faculty of Medicine, Başkent University, Ankara-Turkey (3)

Introduction

Heart transplantation (HTX) has become an established therapy for patients with end-stage heart failure. Endomyocardial biopsy (EMB) still represents the gold standard for routine surveillance of rejection. We aim to report our experience regarding the use of EMB in monitoring heart transplant recipients.

Methods

We retrospectively evaluated all patients who underwent orthotopic HTX between 2005 and 2016 at our hospital. Mean age of the patients was 11.9 years (11 months-19 years). The route of the procedure, histopathological results and complications were recorded and evaluated with echocardiographic examination.

Results

Orthotopic HTX was performed in 38 children in the last 11 years. A total of 252 EMB procedures were performed. Twenty of the biopsies were performed through the right or left internal jugular vein, others were performed through the right or left femoral vein.

Among the 252 biopsies, 196 (77%) showed no evidence of cellular and humoral rejection. The remainder showed, mild (grade 1R), moderate (grade 2R) and severe (grade 3R) rejection in 27 (10.7%), 9 (3.5%) and 2 (0.8%) EMB, respectively, according to the ISHLT guidelines. Ten episodes (3.9%) of acute humoral and 3 (1.2%) episodes of suspected humoral rejection were detected. Only in 2 cases (0.8%) the harvested EMB specimens contained no myocardial tissue.

Five patients who had biopsy-detected rejection had left ventricular ejection fraction (EF) between 0.45-0.60 and 4 patients with rejection had EF below 0.45. A patient with grade 1R cellular rejection had a normal EF but pericardial effusion. One had a normal biopsy result but systolic and diastolic dysfunction with echocardiography.

The rate of serious acute complications was 0.8% (2 of 252 EMB) in our study (one myocardial perforation and pericardial effusion with spontaneous resolution and one hematoma in the groin). There were no long-term complications.

Conclusion

The histopathological examination of right ventricular EMB still represents the gold standard of care for cardiac allograft rejection monitoring. EMB is an invasive, but safe and dedicated diagnostic procedure. However, the usefulness of recent non-invasive diagnostic approaches for detecting rejection remains to be further analyzed.