

ORAL PRESENTATION

Open Access

# Xenoreactive antibody response following pulmonary valve replacement using porcine bioprosthesis in the young

MS Kim<sup>1\*</sup>, YJ Kim<sup>1</sup>, HK Lim<sup>1</sup>, CS Park<sup>2</sup>

From 23rd World Congress of the World Society of Cardio-Thoracic Surgeons  
Split, Croatia. 12-15 September 2013

## Background

Xenoreactive antibody reaction is known to initiate the immune-mediated valve destruction. To investigate the immune effect, serum anti- $\alpha$ -Gal antibody response following the pulmonary bioprosthesis implantation, including clinical factors, immunoglobulin types and patterns that might influence the anti- $\alpha$ -Gal immune response in children and young adults were studied.

## Methods

Between January 2008 and February 2011, 40 patients underwent pulmonary valve replacement using a porcine bioprosthesis at an age younger than 30 years. There were 27 males (67.5%), and the median age at operation was 14 years (1.1–27.3 years). Serum was obtained from each patient prior to the operation, 1 day after the operation, at discharge, and at the first and second outpatient clinic visits. These samples were analyzed with an enzyme-linked immunosorbent assay.

## Results

Regardless of the isotype, anti- $\alpha$ -Gal antibody activity was increased at discharge and at the first outpatient visit. Although anti- $\alpha$ -Gal IgG antibody activity remained increased by the second outpatient visit, anti- $\alpha$ -Gal IgM antibody activity did not. Anti- $\alpha$ -Gal IgG antibody activity was higher at discharge among patients younger than 15 years. Anti- $\alpha$ -Gal IgG antibody activity were more prominent at the second outpatient visit in non-blood group B patients (A, O).

## Conclusions

The implantation of a porcine bioprosthesis elicits an increased formation of anti- $\alpha$ -Gal antibodies, with different patterns of IgM and IgG isotypes in children and young adults. Patient's age and ABO blood group may influence the patterns of anti- $\alpha$ -Gal immune response after pulmonary valve replacement.

The early postoperative xenoreactive immune response could be considered to influence the initial process of degenerative valve failure.

## Authors' details

<sup>1</sup>Department of Thoracic and Cardiovascular Surgery, Seoul National University Hospital, Seoul, Korea. <sup>2</sup>Department of Thoracic and Cardiovascular Surgery, Asan Medical Center, Seoul, Korea.

Published: 11 September 2013

doi:10.1186/1749-8090-8-S1-O138

Cite this article as: Kim et al.: Xenoreactive antibody response following pulmonary valve replacement using porcine bioprosthesis in the young. *Journal of Cardiothoracic Surgery* 2013 **8**(Suppl 1):O138.

Submit your next manuscript to BioMed Central  
and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at  
www.biomedcentral.com/submit



\* Correspondence: mesmerist84@gmail.com

<sup>1</sup>Department of Thoracic and Cardiovascular Surgery, Seoul National University Hospital, Seoul, Korea

Full list of author information is available at the end of the article