



CARDIOTHORACIC SURGERY

**IOURNAL OF** 

# 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).

<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



#### 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):0138.

# 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

) BioMed Central

Submit your manuscript at www.biomedcentral.com/submit

© 2013 Kim et al; licensee BioMed Central Ltd. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/2.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

<sup>\*</sup> Correspondence: mesmerist84@gmail.com