

## **P28**

### **Differential quantitative distribution of collagen, elastin, total lipid and other components between leaflets and sectors of aortic and pulmonary artery root before and after cell removal**

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#### **Objectives:**

Current information about quantitative composition of heart valves and related structures are derived from early and partly limited reports often conflicting with recent ones while it is absent in case of pulmonary valve. Our aim has been detailed quantitative determination of extracellular matrix components in leaflet, sinus and proximal wall segment of aortic (AR) and pulmonary artery root (PR).

#### **Method:**

Elastin, collagen, GAGs, total lipid and other components were determined by established biochemical procedures in porcine AR and PR before and after decellularization by detergent-based procedure (Tri-Col). Composition has been expressed in terms of volume fraction as based on density value.

#### **Results:**

Collagen, GAGs and partly elastin were significantly more represented in aortic leaflets and wall (excepting collagen) while total lipid and other unstable components were more relevant in pulmonary counterparts. Fiber volume fraction accounted to 0.16 and 0.17 in AR and PR leaflet while leaflet density value accounted to 1.019 and 1.022, respectively. At variance with AR, Decellularization procedure revealed that PR leaflets contained significant unstable collagen fraction sensible to detergents and quantitatively different within such leaflets.

#### **Conclusions:**

Such findings reveal that compositional pattern of AR and PR as currently accepted would likely need significant reconsideration and revision in order to meet requirements for correct evaluation of biomechanical properties of whole AR and PR as well as of role of its structural components.