Stem cell markers in thoracic aortic aneurysm

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Published online on 16 May 2007

**Background:**

Aortic aneurysm is a common disease among elderly people and is usually found in patients with bicuspid aortic valve (BAV) a decade earlier compared with those having normal aortic valve. So far, only the surgical therapy of aortic aneurysm is available and the need for preventative measures is evident. This study investigated the differentially expressed markers in vascular smooth muscle cells (VSMCs) isolated from diseased aorta.

**Methods:**

Diseased aorta removed directly after surgery treated over night with 0.5% collagenase solution and resuspended in smooth muscle cell growth medium. Dissolved cells grown at 37°C in an atmosphere of 5% CO2 in air. 25cm2 cell culture flasks with 8x106cells/ml were harvested and were spreaded on chamber slides for 24h. Immunohistochemical techniques were used to detect alpha- smooth muscle actin, beta-tubulin, tie-2, VEGF R1, and glial fibrillary acidic protein (GFAP).

**Results:**

There was 2 to 3-fold decrease in the GFAP in aneurysmatic tissues compared to nonaneurysmatic (p = 0.002). However, the expression of alpha- smooth muscle actin was increased in aneurysmatic tissues (4.8±0.5 vs 6.9±1.2, p = 0.002)

**Conclusions:**

Stem cell markers were expressed in diseased aorta, the potential strategies to promote the regression of thoracic aneurysm will be here discussed.