Abstract: P324

New molecular panel with high sensitivity and specificity for early diagnosis of degenerative aortic stenosis

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Background
Using animal models for the study of degenerative aortic stenosis (DAS) is crucial to avoid the differences between the analyzed subjects, something common in these patients due to its age and the associated pathologies. Specifically, rabbit models are ideal since this animal has many similarities to humans, including valve histology and lipid metabolism.

Purpose
Our objective was to characterize proteins involved in the first stages of DAS, searching for candidates for early diagnostic suitable to be transferred to the clinic.

Methods
In this work, we have analyzed aortic valves (AV) from healthy and mild stenotic rabbits. Male New Zealand White rabbits were divided in control and pathological group (cholesterol-enriched diet plus vitamin D2). After the sacrifice, AV were harvested and their proteins were analyzed using 2D-DIGE. Differentially expressed proteins were measured in plasma from the same rabbits to corroborate their potential as diagnostic indicators and in plasma from human subjects to confirm their feasible translation to the clinical field.

Results
Fifteen spots were found differentially expressed corresponding to 8 unique proteins. Of them, 5 proteins were measured in plasma samples from rabbit and 3 were also altered in human plasmas: transitional endoplasmic reticulum ATPase, tropomyosin alpha-1 chain and L-lactate dehydrogenase B chain. ROC curves were performed for these proteins, separately and as a panel, in order to establish its sensibility and specificity. In all cases, the area under the curve was higher than 0.73 and the p-value below 0.037. The diagnostic power of the three proteins as a panel was much better than the proteins alone.

Conclusion
Here, we have defined a new panel with potential for the early diagnostic of DAS, something that should not be undervalued. Starting the treatment during the asymptomatic period of the disease may reduce mortality and improve the outcome of these patients.
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