

Review

Oxidative Stress in the Pathogenesis of Aorta Diseases as a Source of Potential Biomarkers and Therapeutic Targets, with a Particular Focus on Ascending Aorta Aneurysms

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Abstract: Aorta diseases, such as ascending aorta aneurysm (AsAA), are complex pathologies, currently defined as inflammatory diseases with a strong genetic susceptibility. They are difficult to manage, being insidious and silent pathologies whose diagnosis is based only on imaging data. No diagnostic and prognostic biomarkers or markers of outcome have been known until now. Thus, their identification is imperative. Certainly, a deep understanding of the mechanisms and pathways involved in their pathogenesis might help in such research. Recently, the key role of oxidative stress (OS) on the pathophysiology of aorta disease has emerged. Here, we describe and discuss these aspects by revealing some OS pathways as potential biomarkers, their underlying limitations, and potential solutions and approaches, as well as some potential treatments.

Keywords: aorta diseases; ascending aorta aneurysm (AsAA); reactive oxygen species (ROS); oxidative stress; potential biomarkers; benefits and limitations; potential treatments