Commentary on the association of blood group antigens with post-implant thrombosis of mechanical heart valves

We read with great interest the report entitled “ABO blood types: impact on development of prosthetic mechanical valve thrombosis” by Astarcıoğlu et al. (1) published in this current issue of The Anatolian Journal of Cardiology. ABO antigens are ubiquitously expressed on wide variety of eukaryotic cells, as well as erythroid/myeloid cell lineages of human bone marrow. Relevant to their involvement in the process of coagulation, endothelial cells and platelets also express these antigens on their surface (2). Accordingly, more studies are focusing on extended implications of ABO antigen system beyond transfusion of blood products and tissue transplantation. Particularly the association of ABO blood group with cardiovascular conditions has gained recent interest (3). ABO blood group is considered a determinant of von Willebrand factor (vWF), which is functionally linked to anti-hemophilic factor VIII. Lack of both A and B antigens, as in individuals with O blood group, is associated with 25% reduction in expression of vWF on the surface of endothelial cells, which could theoretically translate to excessive bleeding (4). Expression of either A and/or B antigens is described as one of the most common risk factors for venous thromboembolism (5). ABO antigens have been associated with risk of coronary artery disease and even risk of in-stent restenosis (6, 7). Authors of a study of patients admitted with warfarin over-anticoagulation identified blood group type O as an independent predictor of morality (8). Considering these reports, Astarcıoğlu et al. have hypothesized that ABO blood group could be associated with occurrence of prosthetic valve thrombosis (PVT). They compared a relatively large group of patients with PVT with study participants with normal risk factors for PVT could provide more information on potential role of ABO blood groups and development of PVT.

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References