Effects of the age/rage axis in the platelet activation

Recabarren-Leiva, D.
Burgos, C.F.
Hernández, B.
García-García, F.J.
Castro, R.I.
Guzman, L.
Fuentes, E.
Palomo, I.
Alarcón, M.

Abstract
Platelet activity is essential in cardiovascular diseases. Therefore our objective was to evaluate the main effects of activating RAGE in platelets which are still unknown. A search for RAGE expression in different databases showed poor or a nonexistent presence in platelets. We confirmed the expression in platelets and secreted variable of RAGE (sRAGE). Platelets from elderly adults expressed in resting showed 3.2 fold more RAGE from young individuals (p < 0.01) and 3.3 fold with TRAP-6 (p < 0.001). These results could indicate that the expression of RAGE is more inducible in older adults. Then we found that activating RAGE with AGE-BSA-derived from methylglyoxal and subthreshold TRAP-6, showed a considerable increase with respect to the control in platelet aggregation and expression of P-selectin (respectively, p < 0.01). This effect was almost completely blocked by using a specific RAGE inhibitor (FSP-ZM1), confirming that RAGE is important for the function and activation platelet. Finally, we predict the region stimulated by AGE-BSA is located in region V of RAGE and 13 amino acids are critical for its binding. In conclusion, the activation of RAGE affects platelet activation and 13 amino acids are critical for its stimulation, this information is crucial for future possible treatments for CVD.

Author keywords
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