Anti-inflammatory and antiplatelet activities of plasma are conserved across twelve mammalian species

ABSTRACT

Human plasma inhibits arachidonic acid metabolism and platelet aggregation. This helps human form a haemostatic control system that prevents the progress of certain aggregatory or inflammatory reactions. Whether this property of plasma is unique to human or extends to other species is not well known. It is speculated that this protective ability of plasma remains evolutionarily conserved in different mammals. In order to confirm this, the effect of plasma from 12 different mammalian species was investigated for its inhibitory potential against arachidonic acid metabolism and platelet aggregation. Metabolism of arachidonic acid by cyclooxygenase and lipoxygenase pathways was studies using radio-immuno assay and thin layer chromatography while platelet aggregation in the plasma of various mammals was monitored following turbedmetric method in a dual channel aggregometer. Results indicate that inhibition of AA metabolism and platelet aggregation is a common feature of plasma obtained from different mammalian species, although there exists large interspecies variation. This shows that besides human, other mammals also possess general protective mechanisms against various aggregatory and inflammatory conditions and this anti-inflammatory property of the plasma is evolutionarily conserved in mammalian species. The most likely candidates responsible for these properties of plasma include haptoglobin, albumin and lipoproteins.

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