Delayed inhibition of agonist-induced granulocyte-platelet aggregation after low-dose sevoflurane inhalation in humans

Summary / Zusammenfassung
Our group previously demonstrated that low-dose sevoflurane inhalation protects the endothelium against reperfusion injury in a human forearm ischemia model. We further showed in healthy volunteers that sevoflurane inhalation at subanesthetic concentrations modifies the human blood transcriptome and decreases the expression of proinflammatory L-selectin (CD62L) on granulocytes for up to 48 hours, consistent with the occurrence of a “second window of protection”. Thus, sevoflurane with its pleasant non-pungent odor might serve to provide conscious sedation combined with organ protection in all clinical settings where ischemia-reperfusion plays a role.

In contrast to these promising findings, which would suggest the use of low-dose sevoflurane inhalation as a valuable alternative to intravenous propofol sedation in cardiovascular at-risk patients, are reports on enhanced expression of platelet markers and platelet aggregation by sevoflurane. Therefore, the aim of the present study is to test (1) whether sevoflurane inhalation at low doses would decrease formation of leukocyte-platelet aggregates under ADP and arachidonic acid (AA) stimulation in humans in vivo and (2) whether it affects blood clot formation.

We observed a significantly reduced granulocyte-platelet aggregation after various stimuli 24 hours after treatment. Furthermore the clot firmness measured by thrombelastography 24 hours after sevoflurane inhalation was significantly reduced.

Publications / Publikationen

Keywords / Suchbegriffe
anesthetics, endothelium, inflammation, hemostasis

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