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Fibrinogen Related Homologous C-Terminal Peptides (Haptides) Modulate Systemic Blood Preasure by Mast Cells Activation

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Background: We described a family of homologous short peptides from the C-termini of fibrinogen β and γ chains (Haptides Cβ and preCγ, respectively). These Haptides induced significant transient coronary artery vasoconstriction in isolated perfused rat hearts accompanied by temporary decrease in hemodynamic functions.
Aims: Assessment of systemic effect of intravenously administered Haptides, as reflected by modulation of blood-pressure.
Methods & Results: Intravenous administration of Haptides in non-sedated rats caused immobilization of the animals with a shock-like behavior. Intra-arterial monitoring in sedated rats showed that low concentrations (35-560 μg/kg rat) caused transient decrease in the systolic and diastolic blood pressure by up to 55% ($p<0.05$) in a dose dependent manner, accompanied by minor increased in heart rate. Randomly scrambled sequences of the Haptides had no such effect, suggesting a specific receptor mediated effect. Intravenous administration of anti histamine-receptor agents before Haptides administration attenuated this effect. Furthermore, in vitro incubation of Haptides with human cord blood derived mast cells, or with isolated rat peritoneal mast cells caused degranulation and activation of the mast cells.
Conclusions: Our data suggest that Haptides Cβ and preCγ activate mast cells, resulting in histamine release, causing a steep decrease in blood pressure, comparable to an anaphylactic shock. Thus, it is suggested to conceder an anti histaminic regimen in pathological condition of intensive fibrinolysis.