Galanin reduces pancreatic vascular perfusion (PVP) in the Australian possum

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Severe acute pancreatitis is associated with compromised pancreatic microcirculation. Galanin is a vasoactive agent, however its role in the regulation of PVP is uncertain. To determine if galanin and the antagonist galantide influence blood pressure (BP) and PVP (laser Doppler fluxmetry) in anaesthetised (IV thiopentone; 5-10mg/kg/h) possums, galanin (n=5) and galantide (n=5) were administered intravenously. Galanin boluses (0.001-10nmol) produced a dose-dependent increase in BP (maximum to 177% of baseline), and a complex PVP response consisting of a transient (2-3second) increase, followed by a fall below baseline with a subsequent recovery to above baseline at higher doses. By contrast, bolus galantide (0.003-30nmol) caused a dose-dependent biphasic response in BP, with an initial reduction to 73% followed by recovery, then a further fall to 84% of baseline followed by recovery. A biphasic PVP response occurred, with an initial maximal increase to 178%, followed by a maximal fall to 56% of baseline at the highest dose. The second phase responses of these agents were consistent with a passive response of the pancreatic vasculature to more prolonged systemic cardiovascular effects. Continuous infusions of galanin (1 and 10nmol, n=4) resulted in sustained increased BP, associated with an initial decrease in PVP which stabilised just below baseline. Infusions of galantide (3 and 30nmol, n=4) caused a decrease in BP which returned to baseline after 6 minutes, and a biphasic PVP response which initially increased to 178%, followed by a maximal fall to 56% of baseline at the highest dose. Taken together, these data suggest that bolus galanin acutely reduces PVP, whereas galantide increases it, implying galanin may be important in the regulation of PVP. Infusions of the agonist galanin produced sustained reduction in PVP, whereas infusions of galantide initially produced the opposite, followed by a more sustained agonist-like effect, suggesting that galantide has both antagonist and agonist effects in the pancreas.

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