

Adrenomedullin is increased by pulsatile shear stress on the vascularendothelium via periodic acceleration (pGz).

透過周期性加速度(pGz)，藉由脈搏抗剪應力，在血管內皮增加腎上腺髓質素。

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Periodic acceleration (pGz) is produced by a platform which moves the supine body repetitively in a headward to footward direction. The imparted motion produces pulsatile shear stress on the vascular endothelium. Pulsatile shear stress on the vascular endothelium has been shown to elicit production of a host of cardioprotective, cytoprotective mediators. The purpose of this study was to ascertain if pGz also enhances production of adrenomedullin (AM) in normal healthy swine. Twelve pigs (weight range 20-30 kg) were anesthetized, intubated and placed on conventional mechanical ventilation. All animals were secured to the motion platform. In one group (pGz) (n=7) was activated for 1h, and monitored for an additional 3h. A control group (CONT) (n=5) served as time control. Arterial blood gases, hemodynamic measurements, and serum for AM, interleukin 4, 6 and thromboxane B(2) (TBXB2) were measured at baseline, immediately after pGz, and 3h after pGz had been discontinued. There was no significant change from baseline value in IL-4, IL-6 or TBXB2. Mean arterial blood pressure decreased in pGz-treated animals from 115±10 at baseline to 90±8 after 60 min of pGz ($p<0.01$). AM levels increase from 776±176 pg/ml baseline to 1160±68 pg/ml immediately after pGz, and remained elevated to 1584±160 pg/ml, 3h after pGz ($p<0.01$ vs. BL). This is the first report of AM-enhanced production using a non-invasive method of increasing pulsatile shear stress on the vascular endothelium. PGz increases production of AM in normal healthy swine.