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Vessels and Endothelium

12.7 Organ Culture is Not a Suitable Model to Study Angiotensin II-Induced Remodelling in Resistance-Sized Arteries of Spontaneously Hypertensive Rats (SHR)

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Introduction. Organ culture is an in vitro ex vivo technique that allows the study of the effects of prolonged administration of different molecules on small resistance arteries remodelling. In vivo chronic angiotensin II (AT-II) infusion is a well known model of experimental hypertension in rodents.

Aim. To assess whether a 3 day AT-II administration in an organ culture model is able to induce remodelling of mesenteric resistance arteries of SHR.

Methods. Twelve SHR, 12 weeks old were used for the present study. First order mesenteric arteries were isolated from bowel and mounted in an organ culture system. Vessels were incubated for 3 days in the presence or absence of AT-II (1μM) at a pressure of 60 mmHg. Every day pressure-diameter (P/D) curves (10-140 mmHg) were recorded in the absence of smooth muscle tone. Vessel viability was assessed by norepinephrine-induced constriction on day 3.

Results. Exposure to AT-II failed to induce any statistically significant change in P/D curves in M/L ratio (Cnt: 0,08768± 0,00230; Ang: 0,08799± 0,00763; p=NS) and in stress/strain curves. remodelling, at least in SHR after development of hypertension.

Conclusions. Further studies are needed in order to clarify whether these results are related to limitation of the technique (short duration of culture) or to pre-existing renin-angiotensin-aldosterone system activation in SHR.