

Effects of angiotensin II on plasma atrial natriuretic factor in nonpregnant and pregnant ewes.

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Abstract

The release of atrial natriuretic factor (ANF) is primarily determined by atrial stretch, but may also be modulated by circulating angiotensin II (AngII). During pregnancy, the circulating concentrations of both ANF and AngII are increased. To further define possible effects of AngII on ANF release, four doses of AngII (0.5, 5, 20, 40 ng.kg⁻¹.min⁻¹) were intravenously infused into five nonpregnant and five pregnant (105-140 days of gestation) ewes alone and during the simultaneous infusion of sodium nitroprusside at doses sufficient to abolish the pressor effects of AngII. Mean arterial pressure (MAP) was increased from 80 ± 2 to a maximum of 121 ± 5 mmHg (1 mmHg = 133.3 Pa) in nonpregnant ewes ($p < 0.01$) and from 79 ± 2 to 116 ± 4 mmHg in pregnant ewes ($p < 0.01$) over the range of AngII infusion. MAP was unaltered during AngII plus nitroprusside infusion, averaging 78 ± 3 mmHg in nonpregnant ewes and 80 ± 2 mmHg in pregnant ewes. Basal ANF was higher ($p < 0.01$) in pregnant sheep than in nonpregnant sheep. With AngII infusion alone, plasma ANF was increased from 13 ± 2 to 42 ± 4 fmol/microL in nonpregnant ewes ($p < 0.01$) and from 23 ± 5 to 72 ± 16 fmol/microL in pregnant ewes ($p < 0.01$). However, during AngII plus nitroprusside infusion, the increases in plasma ANF observed were completely abolished in both nonpregnant and pregnant ewes.(ABSTRACT TRUNCATED AT 250 WORDS)