

**EXISTENCE OF FUNCTIONAL ENDOTHELIN- ANGIOTENSIN- ATRIAL NATRIURETIC PEPTIDE SYSTEM IN THE COW OVIDUCT**

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Angiotensin II (ang II) and atrial natriuretic peptide (ANP) are major vasoactive peptides, and thus they could be involved in autocrine/paracrine regulation of the oviduct contraction. We therefore aimed to investigate the effect of Ang II and ANP on the bovine oviduct contraction and secretion using two different in vitro experimental models.

In the first study, a novel in vitro microdialysis system (MDS) was utilized to investigate the effect of Ang II and ANP on the release of PGE 2, PGF2  $\alpha$ , ET-1 and Ang II in the bovine oviduct. In the follicular and post-ovulatory phases, the infusion of Ang II ( $10^{-6}$  M) and ANP ( $10^{-7}$  M) increased the release of PGE2 and PGF2  $\alpha$ . Ang II stimulate ET-1 release, whereas ANP did not. Contrary to the effect on the Et-1 release, ANP stimulated the Ang II release. No effect of the infusion of An II or ANP in the luteal phase oviducts were observed.

In the second study, a direct effect of Ang II ( $10^{-7}$  M) or ANP ( $10^{-8}$  M) on the cotraction of isolated oviduct segments was measured. Administration of Ang II and ANP in to the medium during postovulatory and follicular phases increased the amplitude of oviduct contraction. Both substances did not show any effect on the oviducts from the luteal phase. Any treatments did not affect the spontaneous frequency of oviduct contraction at any stage of the estrous cycle.

The results clearly indicate that, during the periovulatory period, Ang II and ANP stimulate oviduct contractile amplitude. In addition to their direct action on the oviduct contraction, Ang II appears to activate the oviduct contraction mediate by increasing the secretion of PG and Et-1, and likewise, ANP by increasing the secretion of PG and Ang II. Hence, the results suggest an existence of functional endothelin-angiotensin-ANP system in the Cow oviduct during periovulatory period, which may enhance the ividual contraction to ensure maximum efficiency on gamate/embryo transport in the oviduct.