

**0019** Adrenomedullin as a biomarker for tubal ectopic pregnancy – new evidence from adrenomedullin function in the nasal ciliary epithelium

**Wai-sum O, HW Raymond Li, Subin Liao, James C Ho, Ernest HY Ng, William SB Yeung, Annie NY Cheung and Fai Tang**

*LKS Faculty of Medicine, The University of Hong Kong, Hong Kong SAR, China*

**INTRODUCTION:** Adrenomedullin (ADM) is a potent vasodilator belonging to the calcitonin family with a high homology to calcitonin gene-related peptide (CGRP). The combination of calcitonin receptor-like receptor and receptor activity-modifying protein (RAMP) isoforms determines the ligand selectivity for CGRP and ADM. Our laboratory previously showed that oviduct produced the greatest amount of adrenomedullin in the rat female reproductive tract. ADM was found to play a crucial role in transporting the gametes/embryos by increasing the oviductal ciliary beat and inhibiting the contraction of the rat oviduct. Similar results were also found in human oviducts. **METHODS AND RESULTS:** Oviducts were obtained from patients undergoing surgical salpingectomy for ectopic tubal pregnancy (tEP) or hysterectomy for benign gynaecological conditions (control). Oviducts from tEP patients expressed one-tenth *Adm* mRNA compared with those control oviducts incubated with oestradiol, progesterone and hCG to simulate early pregnancy conditions. The ciliary beat frequency and frequency of muscle contraction were lower in the oviducts from patients with tEP than those from “simulated normal pregnancy”. The plasma and oviductal tissue ADM levels were also significantly lower. The decreases in ciliary beat and frequency of contraction were restored to normal after ADM treatment. Significant level of *Adm* mRNA was found in the nasal epithelium of TOP patients. The frequency of ciliary beating in the nasal epithelium correlated with that in the oviduct in tEP patients and was significantly lower than that of patients undergoing termination of pregnancy (TOP) at similar stage of pregnancy **CONCLUSIONS:** Our findings suggest that similar to the oviduct, the decrease in ciliary beating in the nasal epithelium may be related to the reduction in ADM level and raise the possibility of using the nasal cilia epithelium ciliary beating frequency and ADM mRNA expression as a predictor for tubal ectopic pregnancy.