**EXPRESSION OF OPIOID RECEPTORS DELTA AND KAPPA IN THE HUMAN TISSUE OF DIABETIC’S PATIENTS**

M. Ismail1,2, A. Rungatscher1, M.A. Gebrie1, G.B. Luciani1, I. Cristobo2, S. Notararigo2, C. Chen-Scarabelli2, **T. Scarabelli2**, G. Faggian1

1. University of Verona, Italy

2. University of Alabama at Birmingham, USA

*Background*: Opioid receptors include four major subtypes, i.e. mu (MOR), delta (DOR), kappa (KOR), and nociceptin receptor (NOR), all of which G protein-coupled receptors. Prior studies carried out both in animal models and the human hearts have shown that opioid receptor activation induces cardioprotection. Although it is well known that diabetic patients (DMPs) undergoing on-pump cardiac surgery (OPCS) have higher morbidity and mortality than non-diabetic patients (NDMPs), the molecular mechanisms responsible for the reported worse outcomes remain unknown.Objectives: The present study investigated the expression levels of DOR and KOR in the right atrium of DMPs and NDMPs undergoing OPCS.

*Methods*: A total of 20 sequential biopsy specimens were obtained from the right atrium of 10 DMPs and 10 NDMPs before cardiopulmonary bypass. The expression levels of DOR and KOR RNA and protein were evaluated by Real-Time (RT) PCR, as well as Western Blotting (WB) and immunohistochemistry, respectively.

*Results*: By RT-PCR and WB analysis, DOR and KOR RNAs and proteins were detected in all samples from DMPs and NDMPs. Cytosolic and perinuclear expression of DOR and KOR proteins was detected by immunohistochemistry in 55+/-6 % of cardiac cells from DMPs and in 53+/-8 % of myocytes from NDMPs (p: >0.05). Colocalization of DOR and KOR proteins was seen in the vast majority of cardiac cells (87+/-11% in DMPs and 82+/-8% in NDMPs; p: >0.05).

*Conclusion*: The expression levels of DOR and KOR proteins assessed prior to cardioplegic arrest in patients undergoing OPCS was not found to be different between DMPs and NDMPs. Further experiments are warranted to verify whether cardioplegic arrest can induce differently DOR and KOR RNAs and proteins in NDMPs vs DMPs and, if so, whether this change in expression can affect myocytes survival in either patient population.