

15<sup>th</sup> International Conference on

## DIGESTIVE DISORDERS AND GASTROENTEROLOGY

July 11-12, 2018 Sydney, Australia

**Preconditioning and hypothermia as a protective effect for liver reperfusion injury due to femoral artery ligation on *Oryctolagus cuniculus***Sinta Chaira Maulanisa<sup>1</sup> and Yefra Moenadjat<sup>2</sup><sup>1</sup>University of Indonesia, Indonesia<sup>2</sup>Dr. Cipto Mangunkusumo National Central General Hospital, Indonesia

**Introduction:** Ischemia-reperfusion injury (IRI) causes damage to cells that are remote from the ischemic organ. Protective strategies have been developed for protection of organs from ischemia reperfusion injury, which are ischemic pre-conditioning (IPC) and hypothermia. IPC has been proven to decrease tissue injuries through resistance mechanisms towards ischemia and lower energy requirements. Meanwhile, hypothermia detained the rate of cell deaths. This research aims to evaluate the protective effects of IPC and hypothermia towards morphological changes of liver tissues and the increase of malondialdehyde (MDA) level as a response to oxidative stress.

**Methods:** This experimental study using 24 *Oryctolagus cuniculus*, consist of four groups of animal, three control animals and 21 experimental animals. The IRI group underwent femoral artery ligation under anesthesia for four hours to induce ischemia. Afterwards, the ligation was released. The IPC group underwent repeated ligations of right communal femoral artery for two minutes and three minutes of release in two cycles. Afterwards, the arteries were ligated for four hours. The hypothermia group underwent ischemia and wrapping of right lower extremities using ice, with temperature around 31-33 °C. Liver histopathology and MDA assessment was conducted.

**Results:** On histo-morphological assessment, there were histo-morphologic changes on ischemia group compared IPC and hypothermia ( $p < 0.05$ ). The degree of histo-morphological damage in the IPC group was lower than for the reperfusion ischemia reperfusion group ( $p = 0.015$ ). MDA levels of IPC group and hypothermia groups were lower than in the ischemic reperfusion groups ( $p = 0.002$ ).

**Conclusion:** Ischemic reperfusion condition causes histo-morphological changes and oxidative stress on liver cells. IPC and hypothermia have protective effects from ischemia-reperfusion injuries. The protective effects of IPC were better than hypothermia.

**Biography**

Sinta Chaira Maulanisa is a General Surgery Resident at dr. Cipto Mangunkusumo National Central General Hospital, Jakarta-Indonesia. She has completed her Graduation as a Medical Doctor from University of Indonesia. She has done some research about ischemia reperfusion injury. She was worked in rural area of west java Indonesia as an internship doctor in 2010-2011.

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