ABSTRACT

Effect of Melatonin on Follicular Fluid Isoprostan Level in Female White Rats (*Rattus novergicus*) Sprague Dawley Strain Exposed to Cigarette Smoke

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Tobacco use is associated with many disease such as cardiovascular, cancers, chronic respiratory diseases and infertility. In addition to oxidant in cigarette smoke, inflammatory response and release ROS were increased. All tissues especially reproduction cell are vulnerable to oxidant damage. Oxidative stress may be a cause of poor oocyte quality by apoptosis process, inhibitions of fertilisations and failure to embriogenesis. To access oxidative stress within the follicle by cigarette smoke, an isoprostan as intrafolicular oxidative marker were measured. Melatonin has been assosiated with antioxidant defence. It can develop its action at two level : as direct antioxidant and as an indirect antioxidant

The reseach conducted to determine the effect of melatonin to follicular fluid isoprostan level in female white rats which exposed by smoking puff. Experimental laboratory using a randomized posttest control group design, twenty-seven female white rats (*Rattus norvegicus*), 2 month Spraque Dawley strain, 180-185 g were divided into 4 groups (7 animal each). Four group were exposed by smoking puff, 2 cigarette daily, 30 minutes after exposure rats given intragastric solution sondage. K_1 recieve intragastric water sondage, K_2 recieve intragastric melatonin 5 mg/kg solution sondage, K_3 recieve intragastric melatonin 10 mg/kg solution sondage, and K_4 recieve intragastric melatonin 20 mg/kg solution sondage. Measurement of follicular fluid Isoprostan level using ELISA method provided by Oxford Biomedical Research.

Follicular fluid isoprostan level were normally distributed and homogenized. One way Anova result show that there were significant difference mean betwen group (F=11,703 , p=0,001, α=0,05). Mean of follicular fluid isoprostan level of K_1 was higher than K_2 and K_3. Group K_3 mean of follicular fluid isoprostan level (1,46 ± 0,43 ng/ml) compared with K_4 (1,27 ± 0,71 ng/ml) was higher but not significant (p<0.05). This result sugest that antioksidant effect in K_3 compare with K_4 had influance by receptor-mediated melatonin action (indirect antioksidant).

The conclusion of this study is melatonin dosage 5 mg/kg and 10 mg/kg can decrease the fluid isoprostan level in female white rats (*Rattus norvegicus*) Sprague Dawley strain which exposed by smoking puff.

Keywords : ***Melatonin, Follicular fluid, Smoking, Oxidative stress***