The Expression of PCNA and Apoptosis on Liver Cell Damage due to Oxidative Process of Aflatoxin B_1 Biotrans Formation

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ABSTRACT

The objective of this study was to disclose the expression of Proliferative Cell Nuclear Antigen (PCNA) and apoptosis on white rat's liver cells due to oxidative process produced by different dosages and exposure times of Aflatoxin B_1 biotransformation. Using factorial design in this experimental study three exposure times and four dosages of AFB_1 were used. The experiment used 96 white rats. Adult healthy white rats were divided into four groups of 24 rats each, based on the dosages of AFB, given. Each groups was divided further into three sub groups of eight rats based on the leghth of exposure time to AFB_1.

Four dosages of AFB_1, were introduced orally every day into different groups, consisted of 0, 10, 15 and 20, dissolved in 0,2 ml propylene glicol. Three subgroup received the dosage for 12 weeks, 16 weeks and 20 weeks. At the end of the experiment, the rats were sacrificed. Liver cells with PCNA were scrutinized using immunohistochemical method, using ovidin biotin method (DAKO) and apoptosis were determined by using apoptag method (peroxidase insitu detection kit), while liver cell damage were examined using histological slices stained by haematoxillin eosin.

Our data confirmed that : 1) Expression of PCNA were significant differences between no exposure AFB_1 with 16 weeks and 15 µg AFB_1 exposure (a time that dysplacia started). The expression become increase by the increasing dosages and time exposure of AFB_1. 2) Expression of apoptosis become increased until 16 weeks and 15 µg AFB_1 exposure (a time that dysplacia started), but after that there is no increase anymore by the increasing dosage and time exposure AFB_1.

This study conclude that the expression of apoptosis become increase until a time dysplacia started, and will decrease after that, while PCNA become increase after a time where dysplacis started.

Key words : PCNA, apoptosis, Aflatoxin B_1