PHOTOBIOLOGY AND PHOTOPROTECTION

PROTECTIVE EFFECT OF CURCUMINOID EXTRACT AGAINST CPD, 8-0HDG EXPRESSION AND EPIDERMAL HYPERPLASIA IN ALBINO MICE RECEIVING UVB RADIATION

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Introduction: Ultraviolet B (UV-B) exposure on the skin skin results in the formation of cyclobutyl pyrimidine dimers (CPD) and 8-hydroxy2'deoxyguanosin (8-OHdG), two essential compounds involved in photocarcinogenesis. Domestic curcuma containing curcuminoid might protect the skin from this damage. To date, the effectiveness of curcuminoid in preventing DNA damage after UVB exposure in mice has yet to be available.

Objective: Examine the effect of curcuminoid extract application towards the formation of CPD, 8-OHdG and epidermal hyperplasia.

Material and methods: This true experiment post-test design with control group study was carried out in the animal laboratorium of Hasanuddin University medical faculty. A total of 30 albino mice aged 6-9 weeks was divided into six groups and given topical curcuminoid extract of varying concentrations (0.1, 1 and 10 ppm). A 343 mJ UVB exposure was given 20 minutes afterwards. The treatment was done for 12 sessions in the time span of 3 weeks. A biopsy was performed 24 hours after the last session for immunohistochemical and histopathological analysis. The ANOVA test was used to assess the epidermal hyperplasia and Mann-whitney analysis was performed to assess the CPD and 8-OHdG expression ($\alpha \leq 0.05$).

Result: In all cases, there was a significant difference between the negative control and UVB control group. There was a significant difference in CPD expression between the negative control and curcuminoid groups. The UVB control group was significantly different from curcuminoid 10 ppm. There was no significant difference in 8-OHdG expression between negative control group and curcuminoid groups. In addition, no significant difference in 8-OHdG expression among the curcuminoid groups. A significant difference in epidermal hyperplasia was observed in the UVB control group and curcuminoid groups. However, no significant difference was found between the curcuminoid groups.

Conclusion: Curcuminoid extract showed a protective effect against CPD, 8-0HdG expression and epidermal hyperplasia.