

ABSTRACT**THE EFFECT OF NATRIUM DICLOFENAC ON CELL CONTRACTILITY, COLLAGEN DEPOSITION, AND DEGRADATION IN ANTERIOR LENS CAPSULE FIBROTIC MODEL IN VITRO (LABORATORY EXPERIMENTAL STUDY)**

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Purpose: to investigate the effect of natrium diclofenac on cell contractility, collagen synthesis and degradation in human lens epithelial cells (HLEC) of cataract congenital patient.

Methods: HLEC were isolated from anterior lens capsule of cataract congenital patient. HLEC were divided into 4 groups consist of FBS 10% control group, natrium diclofenac 30 µg/ml, 100 µg/ml and 200 µg/ml treated group. This study investigated the effect of natrium diclofenac on cell contractility, collagen synthesis and degradation in HLEC. The collagen synthesis and degradation were determined by Sirius red binding assay, while cell contractility was analyzed by collagen contraction assay. The differences of cell contractility, collagen synthesis and degradation among groups were analyzed using Anova or Kruskal Wallis test followed by posthoc test with significant level of $p < 0.05$.

Results: Natrium diclofenac 30 µg/ml ($19 \pm 6.15 \mu\text{g/mL}$) and natrium diclofenac 100 µg/ml ($12.75 \pm 4.031 \mu\text{g/mL}$) significantly decreased collagen synthesis in line with induction of collagen degradation ($1783 \pm 129.8 \mu\text{g/mL}$ and $1793 \pm 1001 \mu\text{g/mL}$, respectively) in HLEC compared to FBS 10% control (collagen deposition $27.08 \pm 4.518 \mu\text{g/mL}$, $p = 0.000$ and collagen degradation $1060 \pm 136.7 \mu\text{g/mL}$, $p = 0.000$). Natrium diclofenac 30 µg/ml ($13.055 \pm 4.61\%$), natrium diclofenac 100 µg/ml ($13.39 \pm 3.20\%$), and natrium diclofenac 200 µg/ml ($11.26 \pm 1.65\%$) were significantly decreased cell contractility compared to FBS 10% control group ($40.918 \pm 6.67\%$, $p = 0.004$).

Conclusion: Natrium diclofenac might have antifibrotic effect on HLEC through extracellular matrix remodeling.

Keywords: natrium diclofenac, lens epithelial cell, fibrosis