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Sedimentation Rate and Arthritis Inflammatory Score in Adjuvant Arthritis Model

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Abstract : Backgroud : Adjuvant arthritis induction using *Complete freund's adjuvant* (CFA) in Wistar rats resulted in increased *reactive oxygen species* (ROS) production, NF-κB activation and increased joint inflammation and destruction. Tuna (*Thunnus obesus*) contains omega-3 omega-6 fatty acids that play role in inhibition of NF-κB activation. We hypothesised that tuna extract is able to reduce arthritis severity. This study aimed to determine the effect of tuna extract in erytrocyte sedimentation rate (ESR) and arthritis inflammatory score in adjuvant arthritis model.

Method : Three groups of male Wistar rats (*Rattus norvegicus*) (8-12weeks, n=8/group) ie. Non treated, adjuvant arthritis by induction with Complete Freund's Adjuvant (CFA) and adjuvant arthritis + tuna extract (12 g/kg BW per oral/day) at day 22 post CFA induction for 7 days. At day 29 ESR was measured in all groups by Wintrobe method and arthritis inflammatory score was measured clinically.

Results : The results of Mann Whitney test showed there was significant difference (p=0.005) of ESR between non treated group and adjuvant arthritis groups (1.4 $\pm$ 0.5 vs 2.4 $\pm$ 0.5). There was significant reduction (p=0.044) of ESR in adjuvant arthritis group received tuna extract vs. without (1.9 $\pm$ 0.4 vs. 2.4$\pm$ 0,5). There was significant difference (p=0.001) of arthritis inflammatory score between non-treated group and adjuvant arthritis groups (1 vs 3.5). There was significant reduction (p=0,010) of arthritis inflammatory score in adjuvant arthritis received tuna extract vs. without (2.6 vs. 3.5).

Conclusion : ESR and arthritis inflammatory score in adjuvant arthritis model were significantly reduced by tuna extract treatment.

Key words : tuna, ESR, inflammation, adjuvant arthritis model.

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