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**A highlight on CD4+ T-cells in the spleen in a rat model of rheumatoid arthritis and possible therapeutic effect of omega-3: Histological and immunofluorescence study****Dalia Alaa El-Din Aly El-Waseef**  
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**Background:** Rheumatoid Arthritis (RA), a primary chronic articular disease with wide range of extra-articular and systemic effects. The spleen is one of the most affected organs in RA. CD4+ T cells play an important role in initiation, maintenance and control of the disease.

**Aim:** This work was designed to study the histological changes occurring in the spleen in a rat model of RA and to assess the effect of treatment with omega-3, with special refer to the role of CD4+ T-cells.

**Materials & Methods:** Thirty (30) male albino rats were equally divided into control group and RA group. RA was induced in rats by a single subcutaneous injection of Complete Freund's Adjuvant (CFA). Samples were taken after two and four weeks of the CFA injection. Treatment with omega-3 (300 mg/kg/day in a single, daily oral dose) started two weeks after the injection and continued for another two weeks. Spleen specimens were collected at the appropriate times (for each RA group and its corresponding control group) and processed to get paraffin blocks. Sections were then stained for histological and immunofluorescence studies.

**Results:** Both, early and progressive RA induced noticeable structural changes in the spleen. Thickened capsule and trabeculae, marked congestion of the blood sinusoids of the red pulp were evident. Expansion of the white pulp and areas of mononuclear cellular infiltration were seen, especially in progressive RA. Affection of blood vessel walls was also evident. Immunofluorescence study showed extensive expression of anti-CD4 monoclonal antibodies especially in progressive RA. Treatment with omega-3 significantly improved the structure of the spleen as evident by both histological and immunofluorescence studies.

**Conclusion:** Omega-3 treatment ameliorated the structural damage of the spleen caused by experimental induction of RA.

**Biography**

Dalia Alaa El-Din Aly El-Waseef has completed her MD Histology from Ain Shams University, Cairo-Egypt. She is currently working as a Lecturer in Department of Histology and Cell Biology, at Ain Shams University. She has published several international publications and one published book in the field of histology.

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