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Quercetin function in cellular proliferation of T-lymphocytes in rheumatoid arthritis due to collagen induced arthritis (CIA)

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Introduction & Objective: Quercetin is among of the most important natural flavonoids that has an anti-inflammatory and fortifying effect on the metabolic and immune systems of the body. Rheumatoid arthritis as one of the prevalent diseases, is an autoimmune inflammatory wherein the immune system of the body suffers from a disorder, Th1/Th2 cells exit from the balance and discharge of pre-inflammatory cytokines such as IL-15, IL-8, TNF-α, IL-10 and IL-17 increases over the immune cells. In this research we investigated the quercetin application on the immune system and proliferation of T-lymphocytes to fortify the cellular immunity system in the rats suffering from animal model rheumatoid arthritis.

Material & Methods: 6 to 8 weeks female BALB/C rats were injected with BCII and CFA at the rate of 100 g in the subcutaneous tissue of toe, even booster was carried out on 21st day with BCII and IFA. The arthritis rate was measured with wood experiment, 0 to 4 affected rats were graded, the group 2 rats that had a swelling and redness in their were considered as an aim of the study and were divided into 3 nutrition groups and were daily treated with quercetin at the rate of 20 mg/y, later the rats were subjected to spinal injury and for spleen extraction and separation of spleen cells were located in totally sterile environment, the cellular suspensions for 72 hours growth were introduced in the growth media containing RPM1640 and 5% FCS. *Via* LTT, Brdu and MTT test the proliferation rate of the T-lymphocytes was calculated based on SI. The statistical analysis was carried out with one-way ANOVA method.

Results & Conclusion: The results showed that proliferation of T-lymphocytes in each of the 3 methods that has a significant difference at $P<0.05$ between the quercetin recipient groups and control group and CRA+BCII recipient groups and IRA+Booster BCII recipient groups and this significance is to increase the proliferation rate of T-lymphocytes in the quercetin recipient groups in each of the 2 groups viz. prime and booster. Therefore, quercetin has an ability to stimulate and increase T-lymphocytes that are cellular immune modulators and can be introduced as a medicinal candidate in the design of recombinant drugs for treatment of rheumatoid arthritis.

Biography

Parisa Tavakoli is an Expert in Genetics at Islamic Azad University of Tehran, Faculty of Modern Science; currently studying on rheumatoid arthritis by reducing the expression of pro-inflammatory cytokines.

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