عنوان مقاله:

Effects of Acute Exposure to Heat Stress on Immunological and Lipid Parameters in Rats

محل انتشار:

فصلنامه آرشیو بهداشت حرفه ای, دوره 3, شماره 3 (سال: 1398)

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نویسندگان:

zahra Zamanian - *Department of Occupational Health Engineering, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran*

saeed Yousefinejad - *Department of Occupational Health Engineering, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran*

Mohammad Reza zare - *Department of Environmental Health Engineering, School of Health, Larestan University of Medical Sciences, Larestan, Iran*

Fazel Rajabi - *Department of Occupational Health Engineering, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran*

Zahra Hashemi - *Department of public Health, School of Health, Larestan University of Medical Sciences, Larestan, Iran*

Aboutaleb Modaresi - *Modaresi Laboratory, Larestan, Fars, Iran*

Marjan Gharavi - *Occupational medicine specialist and occupational disease*

Mohammad Ali Tajbakhsh - *Department of Occupational Health Engineering, School of Health, Tehran University of Medical Sciences, Tehran, Iran*

Mohammad Reza Zarei - *Department of Safety Engineering, School of Safety, Esfahan University of Applied Science and Technology, Iran*

Torab Koochaki - *Department of Occupational Health Engineering, School of Health, Mazandaran University of Medical Sciences, Mazandaran, Iran*

Abdolrasoul Rahmani - *Department of Occupational Health Engineering, School of Health, Larestan University of Medical Sciences, Larestan, Iran*

خلاصه مقاله:

Background: Exposure to heat stress can result in lipid parameters alterations as well as immunological responses. This study was aimed to investigate these alterations and responses at different humidity and temperatures levels under controlled laboratory conditions in adult male Sprague–Dawley rats. Methods: A total 15 adult male Sprague–

Dawley rats, weighing between 200 and 250 g, 10-11 weeks of age, were used in the evaluation. After one week, animals were randomly divided into three equal groups of 5 animals each. Reference group (group1) was housed in the cage under WBGT of 20(1) according to experimental design. Also, animals were subjected to mild (WBGT of 29 (1)) and hotter (WBGT of 33(1)) conditions (8 hr/day for one day) in the exposure chamber as group2 and group3, respectively. At the end of exposure to heat stress, blood samples were collected from the heart of rats and different parameters were determined. Results: Based on results, acute heat exposure significantly caused a decrease in serum IgG, IgM, IgA of rats in the case group compared to control group (P<0.05). Conversely, acute heat exposure resulted in a significant increase in the levels of IgE (P<0.05). There was no statistical difference for the lipid parameters after exposure to acute heat stress compared with the control group (P > 0.05). Conclusion: Acute heat stress may affect immune responses depending on the intensity of the exposure. Higher environmental temperatures (WBGT≥32°C) cause more severe changes in plasma immunoglobulins.

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