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CHANGES IN INFLAMMATORY MOLECULES FOLLOWING MODERATE INTENSITY CONTINUOUS AND HIGH INTENSITY INTERMITTENT ACUTE EXERCISES IN YOUNG HEALTHY MEN

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KEYWORDS: Cytokines, Exercise, Intensity

INTRODUCTION AND OBJECTIVE

Currently, many studies has been showed a possible role of physical exercise in the modulation of inflammatory response^(1,2). However, there is very few dataevaluating different intensity iso-work protocols in regard to the effects on inflammatory molecules. Therefore, in this study we evaluated urinary and plasma levels of cytokines following high and moderate intensity protocols of physical exercise.

SUBJECTS AND METHODS

Thirteen young healthy physically active men attended to four supervised training sessions. Two evaluation sessions were performed to measure body composition, physical activity, aerobic and anaerobic capacities before High Intensity Interval Exercise (HIIE) and Moderated Intensity Continuous Exercise (MICE) iso-work exercise sessions on a cycle ergometer. The HIIE protocol included a 5-minute warm-up at 60-70% of heart rate peak (HRp) intensity followed by 10 sets of 30 seconds above 90% with 1 minute of recovery and 3 minutes of cool down (both at the same warm-up power). MICE protocol was per-

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formed at a constant power corresponding to 60-70% of HRp and finalized at the same total work of HIIE. Blood and urine samples were collected before and after the protocols, then stored at -80°C for further analysis by the technique of Cytometric Bead Array (CBA). The molecules measured were Tumor Necrosis Factor (TNF), Interleukin 6 (IL-6), Interleukin 8 (IL-8), Interleukin 10 (IL-10), Interleukin 12 (IL-12p70), Interleukin 1 beta (IL-1β).

RESULTS

We did not find any difference in the comparison of baseline levels (before both exercise protocols) of all cytokines in plasma and urine. In addition, no differences were detected in the comparison of urine and plasma levels of these molecules just after both exercise protocols. On the other hand, some changes were detected when values after exercise were compared to baseline values. Plasma levels of IL-8 significantly reduced following both protocols of exercise, although the reduction was significantly larger after MICE ($p=0.0398$). Urine levels of IL12p70 and IL-1β significantly reduced after HIIE, while both urinary concentrations of both molecules significantly increased following MICE ($p=0.0057$ and $p=0.0266$, respectively). Urine levels of TNF reduced more intensively following HIIE than after MICE ($p=0.0134$). **Conclusion:** These findings showed that both exercise protocols acutely interfere with cytokine levels. Furthermore, HIIE and MICE produced different changes in cytokine profile.

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