698 EFFECTS OF CASEIN AND ADAPTED-MILK FORMULA ON THE PROLIFERATION OF LYMPHOCYTES, MID-CELLS AND GRANULOCYTES AND ON CIRCULTING LIPIDS

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Abstract :

Background: The casein is the main protein that appears to be involved in childhood diseases caused by the consumption of adapted infant-milk formula (IMF).

Objective: To measure the effect of casein of one of the most adapted IMF marketed in Algeria, on the proliferation of lymphocytes, granulocytes and cells MID and on the change in lipid profile.

Materials and methods: Three groups of male rabbits of local breed were used in this study. The first group (n=5, age [±standard error]; 2.900±0.218 months, weight; 936±46.6 g) received different concentrations of casein, three-times daily for 3 days. The second one (n=5) received whole milk by gavage at 5 mL, three-times daily for 3 days (age; 2.7±0.289 months, weight; 932±38.26 g). The third group (n=8) was considered as controls (age; 2.625±0.286 months, weight; 892.5±60.70 g).

Results: Serum levels of TG and VLDLc were significantly lower in rabbits receiving whole milk compared to controls (p=0.001 for both comparisons); however, those of LDL were significantly increased in rabbits receiving the casein solution (p=0.046). Additionally, oral administration of casein or milk caused a significant increase in rates and proportions of leucocytes, granulocytes, cells MID, and a significant decrease in the proportion of lymphocytes.

Conclusions: Casein or IMF consumption can induce increased activity of phagocytes, eosinophils and basophils and inhibition of lymphocytes proliferation. Additionally, whole milk could be beneficial in the prevention of overweight and childhood obesity, while milk casein can cause an atherogenic risk at high concentrations.

Keywords : Casein; immune cells; lipids; adapted infant-milk; formula.

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