



Risk of obesity and hypertension in relation to type of consumed milk: CASPIAN IV

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Background: Generally it is thought that high fat dairy consumption is associated with worse cardiometabolic status. Recently some debates have aroused and there is some opposing evidence. More research is needed to illuminate the issue.

Aim: The aim was to explore the relation between types of consumed milk and body mass Index (BMI) and Blood pressure (BP) status in Iranian children and adolescents.

Methods and Materials: This nationwide study was done as a part of fourth survey of CASPIAN study. It was done in a nationally representative sample of 6-18 year-old students selected through multistage random cluster sampling. Demographic, physical activity (PA) level, screen time (ST), family, medical and infancy history and dietary data were gathered by a validated questionnaire. Anthropometrics and BP were measured according to standard protocols. Hypertension (HTN) and obesity/overweight were defined referring to the pediatric definitions. Type of milk was defined as non-pasteurized milk (NPM) which contains natural dairy fat and usually is considered as high fat dairy, and low-fat pasteurized and high-fat pasteurized milks (LFPM, HFPM) which contain un-intact dairy fat with different amounts. Binary logistic regression test (adjusted for confounder variables as sex, age, physical activity, screen time, BMI, waist– to-height ratio, wais–to-hip ratio, birth weight, infancy milk type, familial history of HTN, other nutrients consumption and frequency of dairy consumption) was used for the main analysis. Statistical analyses were done using SPSS software with p<0.05 as significance level.

Findings: 13,486 students (75.6% urban) entered the study. Data from 6846 boys and 6640 girls with mean age (\pm SD) of 12.47 (3.36) years were analyzed. 26.7% of participants used NPM and 19.2% and 54.1% used LFPM and HFPM respectively. Systolic BP showed no significant relationship with type of milk (p=0.674). Results of logistic regression showed statistically significant increase in risk of overweight /obesity in users of PM in comparison to NPM consumers: LFPM had 0.41 (p<0.001) and HFPM had 0.16 (p=0.01) increase in risk after adjusting for confounders. Also we found 0.63 (p=0/001) and 0.49(p=0/002) increase in risk of





diastolic HTN and diastolic and /or systolic HTN in HFPM consumers in comparison to NPM users respectively. There was no significant HTN risk enhancement in LFPM consumers.

Conclusion: Our study results suppose that the quality of fat in milk (intact natural, un-intact) maybe more important than amount of it in relation to cardio-metabolic risk. The study suggests that natural dairy fat though high in amount is probably protective in this regard.