

ICCN Poster Presentations

Nutrition and cardiovascular disease

Does body mass index reflect percentage body fat and body fat distribution in low and high birth weight subjects?

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Background: Birth weight has been linked to increased morbidity and mortality in later life, but the mechanisms are poorly defined. It is not clear if adults with low and high birth weights have different percent body fat and pattern of fat distribution, which are associated with health outcomes, including cardiovascular disease. The purpose of this study is to assess if the percentage body fat and its distribution within the body differ between adults with a low and high birth weight, after adjusting for BMI.

Methods: A total of 29 men aged 65-72 y old were recruited randomly from a Hertfordshire cohort with known birth weight and divided into two groups: a low birth weight group (<6.5 lbs); and a high birth weight group (>9 lbs). Body composition was assessed using DEXA Hologic Delphin and the results were processed using software v12.2, and expressed as mean \pm standard error.

Results: Compared to the high birth weight group the low birth weight subjects were shorter (1.72 ± 0.02 v 1.78 ± 0.02 m; $P=0.05$) and lighter (79.44 ± 2.17 v 88.80 ± 3.42 kg; $P = 0.02$). The low birth weight group also had a greater % body fat (28.71 ± 1.03 v $25.53 \pm 1.85\%$; NS) despite a lower BMI (26.76 ± 0.50 v 28.00 ± 1.17 kg/m²; NS). When adjusted to the same BMI (27.31 kg/m²) using ANCOVA, there was ~5% more body fat (29.32 ± 1.03 v 24.77 ± 1.15 %; $P=0.006$) and more centrally located fat (ratio of non limb/ limb fat, 1.53 ± 0.05 v 1.34 ± 0.06 ; $P=0.03$).

Conclusion: At the same BMI, older adults with a low birth weight had relatively more body fat and more centrally distributed fat than those with a high birth weight. This suggests that BMI should not be indiscriminately used to assess adiposity in low and high birth weight adults. The results could also help explain the higher risk of cardiovascular disease associated with poor fetal growth.

Elevated blood pressure: emerging health problem in Iran

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Introduction: Hypertension is a major underlying cause of coronary heart disease and stroke. The risk of both CHD disease and stroke increases progressively throughout the observed range of blood pressure. Observational studies show that a sustained difference of only 7.5 mmHg in the diastolic blood pressure confers up to a 28% difference in risk of CHD and a 44% difference in the risk of stroke.

Methods and materials: This national survey was conducted in 2001. The method was cluster sampling for households and in each cluster, 8 households were studied. Totally, 8776 urban and 4719 rural households participated fully in this cross sectional descriptive study, giving a response rate of 99%. Samples had anthropometrics and blood pressure measured and filled out a questionnaire consisting of socio-economic, demographic, dietary intake and biomedical items.

Results: The results indicated that 13.9% of males and 22.1% of females had systolic blood pressure in 45-69 age group. This rate reached to 28.1% of males and 42.3% of females in +70 age group. In addition, 38.9% of males and 46.4% of females had diastolic blood pressure in 45-69 age group. This rate went up to 47% of males and 57.3% of females in +70 age group. The average values of systolic and diastolic blood pressure were 138.6+22.5 and 84.9+12.7 mmHg in men, and 144.7+24.6 and 87.1+13.7 mmHg in women respectively. Based on the results, in different age groups (25-44, 45-69 and, more than 70 years) hypertension was diagnosed in 7.1%, 27% and, 41.4%. Women have statistically significantly higher values of blood pressure compared with men.

Conclusion: Since in many developed and developing countries, the risk of CHD may be three to six times that of stroke, the population benefit of a lower blood pressure will have its greatest impact by reducing the number of cases of CHD. The benefit of lowering blood pressure are clear in both primary and secondary preventive trials. This research reinforces the need for preventive program to control elevated blood pressure in Iran.