Nature and Science

Biochemical and neurological effects of obesity on primary school girls

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Abstarc :

The prevalence of childhood obesity has increased considerably worldwide. As with adults, obesity in

childhood is strongly related to hypertension, dyslipidemia, type II diabetes, and insulin resistance. Also, obese children are at increased risk of becoming obese adults. Therefore, obese children tend to develop serious medical and psychosocial complications, and have a greater risk of adult morbidity and mortality. The principal goal of this study was to investigate the effects of obesity on the levels of some biomarkers and their relation to the cognitive function in elementary school obese girls. The current study was conducted on 45 obese girls (mean age 10.53 ±1.29 years; mean BMI 28.43 ± 4.62 kg/m2) and 45 normal age-matched girls (mean age 10.36 ± 1.53 years; mean BMI 19.07 ± 3.47 kg/m2). Estimation of serum adrenomedullin (AM) and substance P (SP), and plasma noradrenaline (NA) and acetylcholine (ACh) were carried out. Cognitive function tests (auditory vigilance, digit

span, coding and visual memory) were done for all subjects. The levels of serum AM and SP as well as plasma NA were highly significantly increased (P<0.01) in the obese group as compared with the control group. The total right response of auditory vigilance (TR) showed insignificant decrease while the total wrong response to auditory vigilance test (TW) showed a significant increase (P<0.05) in the obese group as compared with the control group. Digit span and visual memory classification showed a highly significant decrease (P<0.01) while coding showed a significant increase (P<0.05). Our study showed that obesity affected the measured biomarkers and, to some extent, has an adverse effect on cognitive function in primary school girls. [Nature and Science 2010;8(4):33-43]. (ISSN:

1545-0740)]

Key Word :
obesity- adrenomedullin -substance P - noradrenaline - acetylcholine – cognition – girls

Volume 8, Number 4, April 2010 , ISSN 1545-0740