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Investigation of serum levels of leptin, ghrelin and growth hormone in Bahraini children with autism

Ghada Al-Kafaji

Arabian Gulf University, Bahrain

Autism is a complex neurodevelopmental disorder characterized by deficits in social communication and/ or interaction and repetitive patterns of behaviour, associated with different levels of cognitive impairments. The exact cause and the pathogenicity of autism are still poorly understood. Recent studies suggest that peptide hormones which act as neurotransmitters on neurological systems may be implicated in the pathogenicity of autism. In this investigation, we measured serum levels of leptin, ghrelin, and growth hormone (GH) in 40 age-matched Bahraini children, 20 with autism (16 males and 4 females) and 20 healthy children (13 males and 7 females) using enzyme-linked immunosorbent assay method. Leptin levels were found to be significantly higher in children with autism (78.05 ± 17.99) than in healthy control children (19.96 ± 11.20), ($P=0.038$). Conversely, ghrelin levels were lower in children with autism (62.40 ± 16.98) than in controls (91.50 ± 36.30), however, without reaching statistical significance ($P=0.32$). Similarly, GH levels were lower in children with autism (0.63 ± 0.02) than in controls (0.72 ± 0.09) but didn't reach statistical significance ($P=0.33$). Multivariate regression analysis confirmed a direct association between higher leptin levels and autism incidence (OR: 0.896, 95% CI: 0.816-0.984, $P=0.021$), and this association remained significant after adjustment for age, sex and body mass index (OR: 0.800, 95% CI: 0.669-0.956, $P=0.014$). The significantly higher levels of leptin in autistic children may suggest an important role of this hormone in the pathophysiology of autism. While the levels of ghrelin and GH seemed to be low in autistic children, both were not significantly different than in controls. These initial findings were based on a small group of children and further validation studies with a larger sample size are required to clarify the relation of these hormones with autism.

Biography

Al-Kafaji is an Associate Professor of Molecular Genetics in the Department of Molecular Medicine and the Director of Personalized Medicine Master Program at the College of Medicine. She obtained her MSC degree in Molecular Biology from Baghdad University in Iraq, and her PhD degree in Molecular Genetics from King's College London, University of London, UK. In the U.K, she worked as a Postdoctoral Research Fellow at the School of Medicine, King's College London, and as an Assistant Professor in Molecular Genetics at the College of Science, University College Kensington. Dr. Al-Kafaji is involved in lecturing and tutoring of undergraduate and graduate students and supervising graduate theses. Her research interest includes genetic variations of complex diseases, novel biomarkers for cancer prediction and other complex diseases. She has abundant publications in the area of molecular genetics that have been cited over 200 times. Dr. Al-Kafaji participated as an active member in many International Scientific Associations. She acted as potential reviewer for many journals and received several certificates of excellence in reviewing scientific articles. She also received a number of awards for best presentations and outstanding work in regional and international conferences.

ghadaa@agu.edu.bh

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