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Chemerin: A front runner as a potential biomarker for metabolic syndrome phenotypes

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Chemerin is a multi-functional peptide involved in lipid and glucose metabolism. Elevated levels of this peptide have been associated with insulin resistance and systemic inflammation. We aimed to explore whether chemerin can discriminate subjects at risk of developing diabetes in non-pregnant population (n=286) as well as in pregnant females (n=483). All study participants were classified according to the American Diabetic Association Criteria as normoglycemic controls or diabetic cases. ELISA assays were performed for chemerin, leptin, interleukin-18, tumor necrosis factor and insulin; while body mass index and insulin resistance were calculated. Ultrasound scans were conducted on pregnant females to record the fetal growth parameters. Levels of chemerin, interleukin-18 and leptin were 7, 4 and 5 folds higher in newly diagnosed diabetic non-pregnant cases as well as those who developed gestational diabetes ($p<0.01$). Chemerin showed strong positive correlation with fasting blood glucose, insulin resistance, fetal weight and TNF ($p<0.01$) even after adjusting for age and BMI. Based on these findings, we proposed that the cutoff of 13.7 ng/ml of chemerin can discriminate 73% of subjects with impaired glucose level with 91% sensitivity and 96% specificity respectively. Furthermore, a cutoff of 15.49 ng/ml can identify 96% GDM cases with 96% sensitivity and 72% specificity. Chemerin along with other inflammatory biomarkers suggest an ongoing inflammatory process in high risk individuals suggesting a role in development of insulin resistance and subsequent diabetes in the long run. Therefore, it can be used as a potential screening biomarker to identify individuals at risk of developing diabetes.

Biography

Syeda Sadia Fatima is a Senior Instructor at the Aga Khan University Hospital. She holds a MBBS degree and is currently pursuing her PhD in Molecular Physiology. Her research focuses on Genetic and Adipocytokine Factors, unique to Pakistani population with respect to Metabolic Syndrome. She has offered courses, workshops and public awareness sessions on these non-communicable diseases and has more than 30 publications in reputed journals and has also contributed a book chapter in this thematic area. In addition, she has been serving as an Editorial Board Member and Reviewer for many reputed journals.

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