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Relevance of HOMA-IR2 in clinical practice: Should be use it as routine diagnostic tool?

Homeostatic model assessment (HOMA) is a method for assessing β-cell function and insulin resistance (IR) from basal (fasting) glucose and insulin or C-peptide concentrations. The HOMA model is used to yield an estimate of insulin sensitivity and β-cell function from fasting plasma insulin and glucose concentrations. The relationship between glucose and insulin in the basal state reflects the balance between hepatic glucose output and insulin secretion, which is maintained by a feedback loop between the liver and β-cells. Decreases in β-cell function were modeled by changing the β-cell response to plasma glucose concentrations. Insulin sensitivity was modeled by proportionately decreasing the effect of plasma insulin concentrations at both the liver and the periphery. Although it has been argued that HOMA is no better than fasting insulin concentrations but, there are several reasons why the use of HOMA in normal subjects is worthwhile. The use of HOMA to quantify insulin sensitivity and β-cell function can be helpful in normal populations as it allows 1) comparisons of β-cell function and insulin sensitivity to be made with subjects with abnormal glucose tolerance and 2) the collection of longitudinal data in subjects who go on to develop abnormal glucose tolerance. However, if the β-cell data are reported in isolation, one might conclude erroneously that the subject had failing β-cells, as opposed to appropriately low secretion, because the sensitivity of the body was high. In conclusion, the HOMA model has proved be a robust clinical and epidemiological tool in descriptions of the pathophysiology of diabetes. Already become one of the standard tools in the armamentarium of the clinical physiologist.

Biography

Geetendra Singh Dhanawat has completed his MBBS from GMC Bhopal and Masters from CMC Vellore. He has completed PG in diabetology from John Hopkins Medical School, USA. He is the Director of Aditya Bharti Centre for Diabetes and Family Medicine, Mumbai.