A new non-invasive technology to screen for dysglycaemia including diabetes


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\textbf{OBJECTIVE:} Assess the ability of a new device based on electrochemical principles using iontophoresis (the EZSCAN) to detect impaired glucose tolerance (IGT) and type 2 diabetes mellitus (DM).

\textbf{METHODS:} Eligible Asian Indian subjects, n=212, had anthropometric and blood pressure measurements, followed by an OGTT, HbA1c, serum lipids tests and EZSCAN measurement.

\textbf{RESULTS:} Biochemically, 24 subjects were diagnosed with DM, 30 with IGT, 57 subjects had normal glucose tolerance (NGT) with metabolic syndrome (MS) and 101 had NGT without MS. Fasting plasma glucose (FPG) and HbA1c levels were highest in the DM group (p<0.0001 for both). HDL-C levels were different (p=0.015). FPG at a cut-off level of 7.0 mmol/L had a low sensitivity to detect DM (29%) EZSCAN had a 75% sensitivity to detect DM, 70% for IGT and 84% for NGT with MS at threshold >50%.

\textbf{CONCLUSIONS:} FPG had low sensitivity to detect DM in the study group. EZSCAN demonstrated good sensitivity to detect IGT and DM and also identified NGT with MS. The concept of measuring ion fluxes through the skin appears to be a powerful method for early detection of MS, IGT and DM.