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Significant Reduction in Full Metabolic Syndrome in Saudi Subjects with Elevated Fasting Glucose through an Intensive Lifestyle Monitoring Programme of 12 months

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Abstract

Background: The present interventional study in adult Saudi subjects with elevated fasting glucose was aimed to determine the health benefits, in terms of reduction in full metabolic syndrome, of a 12-month intensive lifestyle monitoring programme with emphasis on lowering dietary fat intake; exercise and increasing sunlight exposure.

Methods: Between April-2012 and March-2017, 300 Saudi subjects with baseline fasting glucose at 5.6 to 6.9mmol/l were screened and randomly divided into 3 groups: 1) General advice (GA) group who received a standard lifestyle change advice at recruitment and at 6-months, 2) Intensive lifestyle monitoring programme (ILMP) group who was followed with a rigorous lifestyle modification support and 3) Metformin (GA+Met) group who was advised to take 3 tablets/day of 500 mg metformin hydrochloride. Basic anthropometric, glycemic, and lipid estimations were obtained at baseline and after 6-months and 12-months. The data for 85(GA), 73(ILMP) and 59(GA+Met) subjects was analyzed after removing those lost in follow-up etc. The percentages of full metabolic syndrome and its five components were calculated for all three groups at different time points.

Results: The mean fasting glucose at baseline, 6-months and 12-months respectively was 5.97±0.4, 6.07±0.7 and 5.92±0.9 ($p=0.49$) for GA group; 6.06±0.4, 5.66±0.8 and 5.67±0.8 ($p<0.01$) for ILMP group; and 6.57±0.5, 6.01±1.3 and 5.76±1.7 ($p<0.01$) for GA+Met group. 37.3 %(N=22) in GA+Met group were able to reduce their weight by atleast 5% from baseline while this number was 11 %(N=8) and 10.6 %(N=9) in ILMP and GA respectively. Full Metabolic syndrome at end of study compared to the baseline was 64.7%(N=55) vs 72.9%(62) (% change: Δ= -8.2%, p=not significant) for GA group; 35.6%(26) vs 61.6%(45) (Δ= -26%, $p<0.01$) for ILMP group and 64.4%(38) vs 83.1%(49) (Δ= -18.7%, $p<0.01$) for GA+Met group.

Conclusions: This study highlights the clinical potency of intensive lifestyle modification programme versus other anti-diabetic management options in reducing full metabolic syndrome in Saudi adults with elevated fasting glucose.