ORAL ABSTRACTS

ADULT

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EFFECTS OF METFORMIN IN COMBINATION WITH INSULIN ON GLYCAEMIC VARIABILITY IN OVERWEIGHT OR OBESE PATIENTS WITH TYPE 1 DIABETES MELLITUS

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INTRODUCTION
The prevalence of overweight and obese T1DM individuals are increasing. Overweight people with T1DM may be insulin resistant. Glycaemic variability (GV) is an emerging measure of glycaemic control. The aim of this study is to investigate whether metformin, in combination with insulin, has favourable effects on GV.

METHODOLOGY
This is a multi-centre, open-label, randomised crossover study. Overweight or obese T1DM patients aged ≥18 years old, with HbA1c ≥7.0% were recruited and randomised into two arms. For the first 6 weeks, one arm remained on standard of care (SOC), while another arm received oral metformin minimum 1000 mg/day in addition to SOC. There was a 2-week washout period before the groups were subsequently crossed over for another 6 weeks. Anthropometric, blood parameters, CGM were measured at the initiation and end of the study.

RESULTS
A total 46 subjects were included with 23 participants in each arm. Compared to SOC, there were significant reductions in the MET group seen for GV parameters: mean [0.18 ± 1.73 vs -0.95 ± 1.24, p=0.014], %CV [-15.84 (18.92) vs -19.08 (24.53), p=0.044], GRADE [-0.69 (3.83) vs -1.61 (3.61), p=0.047], CONGA [0.25 ± 1.62 vs -0.85 ± 1.22, p=0.013]. Likewise, a significant decrease in systolic blood pressure (SBP) was noted for the MET group [2.78 ± 11.19 vs -4.30 ± 9.81, p=0.027], total daily dose insulin [0.0 (3.33) vs -2.17 (11.45), p=0.012], fasting venous glucose [1.34 ± 4.28 vs -1.54 ± 5.11, p=0.044] and fructosamine [-10.13 ± 29.29 vs -47.39 ± 42.94, p=0.001]. Hypoglycaemic episodes were not significantly different between groups.

CONCLUSION
Metformin showed favourable effects on GV in overweight and obese T1DM patients. Reduction in SBP, total daily insulin dose, fasting venous glucose and fructosamine were also observed when metformin was combined with insulin.