

No association between fear of hypoglycemia and blood glucose variability in type 1 diabetes: The cross-sectional VARDIA study

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AIMS: In type 1 diabetes (T1D), treatment efficacy is limited by the unpredictability of blood glucose results and glycemic variability (GV). Fear of Hypoglycemia (FOH) remains a major brake for insulin treatment optimization. We aimed to assess the association of GV with FOH in participants with T1D in an observational cross-sectional study performed in 9 French Diabetes Centres (NCT02790060).

METHODS: Participants were T1D for ≥ 5 years, aged 18-75 years, on stable insulin therapy for ≥ 3 months. The coefficient of variation (CV) of blood glucose and mean amplitude of glycemic excursions (MAGE) were used to assess GV from 7-point self-monitoring of blood glucose (SMBG). FOH was assessed using the validated French version of the Hypoglycemia Fear Survey-II (HFS-II) questionnaire.

Résumé en anglais RESULTS: Among a total of 570 recruited participants, 298 were suitable for analysis: 46% women, 58% on continuous subcutaneous insulin infusion [CSII], mean age 49 ± 16 years, HbA1c $7.5 \pm 0.9\%$, HFS-II score 67 ± 18 and 12% with recent history of severe hypoglycemia during the previous 6 months, mean CV $39.8 \pm 9.7\%$ and MAGE 119 ± 42 mg/dL. CV and MAGE did not significantly correlate with HFS-II score ($R = -0.05; P = 0.457$ and $R = 0.08; P = 0.170$). Participants with severe hypoglycemia in the previous 6 months had higher HFS scores. Participants with higher HFS scores presented more hypoglycemia during follow-up.

CONCLUSIONS: FOH as determined using the HFS-II questionnaire was not associated with 7-point SMBG variability in participants with T1D, but was associated with a positive history of severe hypoglycemia. Higher FOH was associated with higher frequency of hypoglycemia during follow-up.

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