

Glycemia Risk Index (GRI) before and 12 months after hybrid closed loop (HCL) initiation in the CIRDIA, an out of hospital French HCL initiation center.

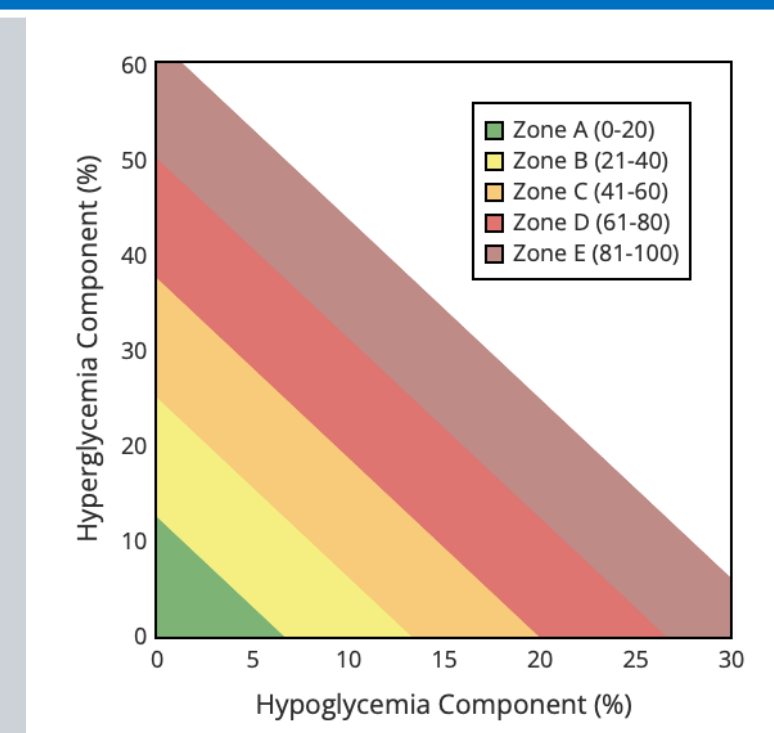
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Background

- The GRI is a number accounting for the hypo and hyperglycemia risk.¹
- It ranges from 0 (= minimal risk) to 100 (maximal risk) and it can be displayed on a GRI grid including 5 GRI zones.²



In 2019, an international expert consensus³ has set glucose targets including :

- Efficacy glucose targets : $TIR^{70-180} > 70\%$ and $GMI < 7\%$
- Safety glucose targets : $TBR^{<70} < 4\%$ and $TBR^{<54} < 1\%$

- Combined efficacy and safety glucose target (ESGT+) was shown to be 47.7% one year after HCL initiation (780G) by P. Choudary et al.⁴
- We showed that a $GRI < 26$ is a good threshold to identify people who reach ESGT+ criteria.⁵

Aim

Can we predict who is going to reach ESGT+ one year (M_{12}) after HCL initiation according to the GRI value at initiation (M_0) ?

Methods

Rolling retrospective study including persons with type 1 diabetes (PwT1D) who had HCL initiation in a CIRDIA center (out-of-hospital initiation center)

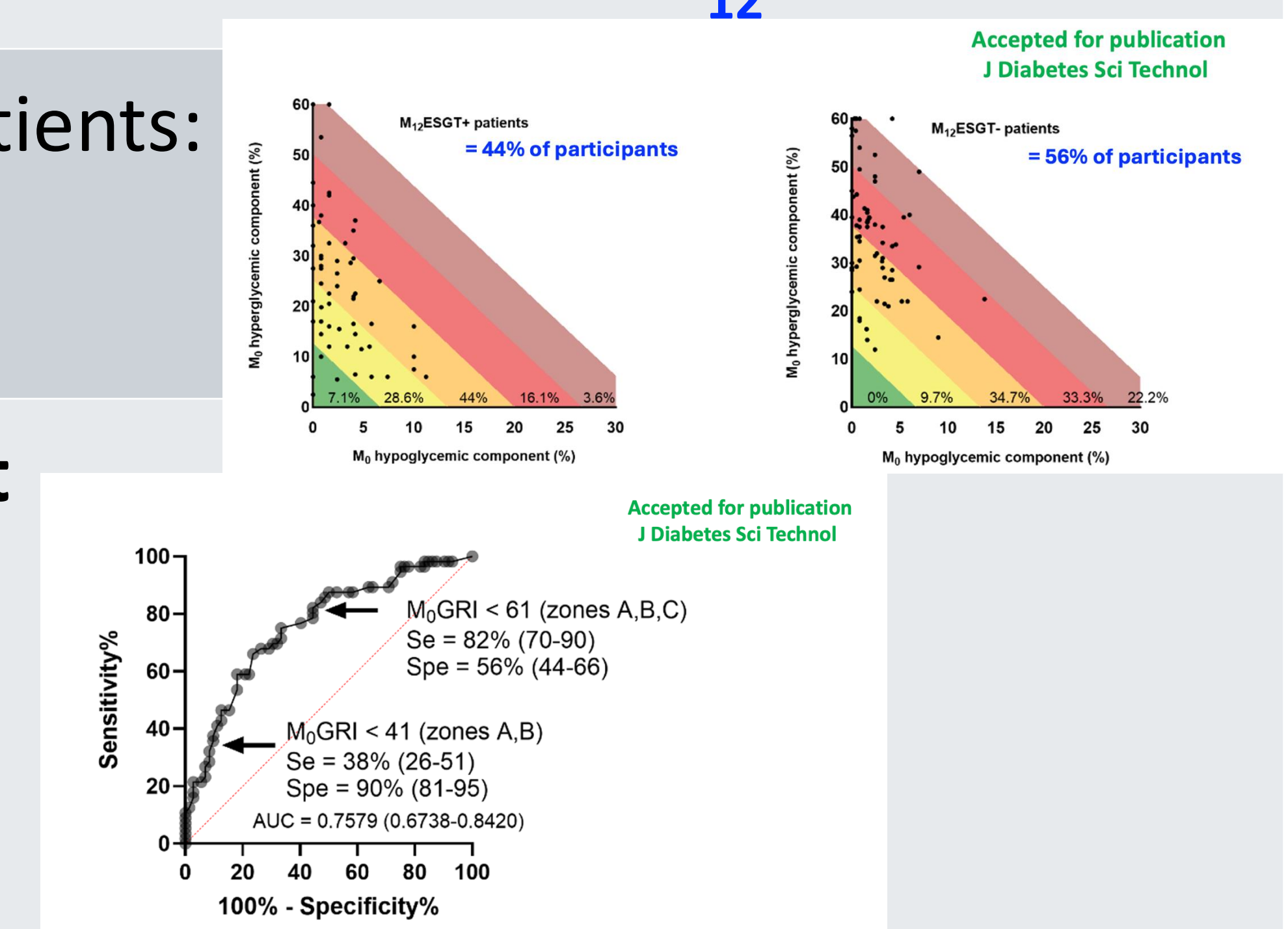
Results

Population : 128 PwT1D, 52% women, 48% men ; 42.9 ± 14.0 years; T1D duration : 23.7 ± 12.1 years; BMI : 27.5 ± 5.0 kg/m²; HCL : 780G (78.1 %) ; CIQ (12.5 %) ; CamAPS (9.4 %)

GRI value dropped from 56.4 ± 21.0 (M_0) to 30.1 ± 14.1 (M_{12}) ($p < 0.0001$) – 44% of participants reached ESGT+ at M_{12}

M_0 GRI was lower in M_{12} ESGT+ patients: **45.9 ± 18.5 versus 64.5 ± 19.4 ($p < 0.0001$)**

ROC analyses of M_0 GRI to predict M_{12} ESGT+ :



Conclusion

Calculating M_0 GRI can help focusing the training on patients with a **GRI > 40 (zones C-D-E) ; however, even people with a M_0 GRI > 60 (zones D-E) can reach ESGT+ at M_{12} (= 20% of M_{12} ESGT+ patients)**

1- D. Klonoff et al. J Diabetes Sci Technol. 2023;17:1226-1242 ; 2- <https://www.diabetestechology.org/gri/> 3- T. Battelino et al. Diabetes Care. 2019;42:1593-1603

4- P. Choudhary et al. Diabetes Technol Ther. 2024;26(S3):32-37; 5- S. Picard et al. Diabetes Metab. 2025 Mar;51(2):101617. doi: 10.1016