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Evaluation of a nutrition program using a diabetes-specific formula with β-Hydroxy-β-Methylbutyrate (HMB) on metabolic and muscle health in patients with type 2 diabetes with or at risk of malnutrition.

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INTRODUCTION & OBJECTIVE:

In adults with **type 2 diabetes** (T2DM) Malnutrition (MN) and Sarcopenia are highly prevalent and are associated with adverse clinical outcomes.

STUDY GOAL

- Evaluate multi-modal nutritional support programme in outpatients with T2DM with/at risk of MN on standard of care
- Using a high-protein diabetes-specific nutritional formula with HMB, Arginine (Arg) and Lysine (Lys) (Glucerna® Advance (Abbott))
- On nutritional, glycaemic, functional and body composition outcomes

METHOD:

A PROSPECTIVE, REAL-WORLD EVIDENCE STUDY

in adults with T2DM and 'MUST' score ≥2 from 16 hospitals in Spain

INTERVENTION FOR 90 DAYS:

- Dietary and physical exercise guidance
- 2 x daily Glucerna® Advance with HMB, Arg and Lys (Abbott)

OUTCOMES MEASURED

Primary - Nutritional status ('MUST');

Secondary - HbA1c, fasting plasma glucose, fat-free mass, phase angle, handgrip strength, chair stand test, sarcopenia diagnosis, quality, quality of life and diabetes distress, GLIM, SGA, SARC-F

Supportive - compliance and acceptability, anthropometrics, demographics, medications, biochemistry parameters, participant and HCP satisfaction surveys

STUDY POPULATION (n=193):

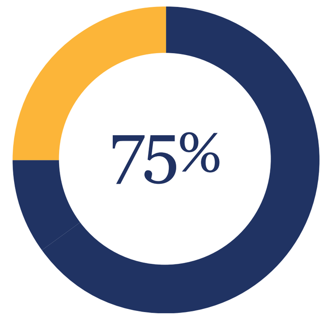
- **MEAN AGE:** 69 years
- 73% male
- 100% high MN risk and T2D
- **MEAN BMI:** 24.2 kg/m²
- **MEAN A1C:** 6.62%
- **MEAN BODY WEIGHT:** 65.6 kg
- **10 YEARS** with T2DM
- 87% oral antidiabetic meds
- 23% insulin use

RESULTS:

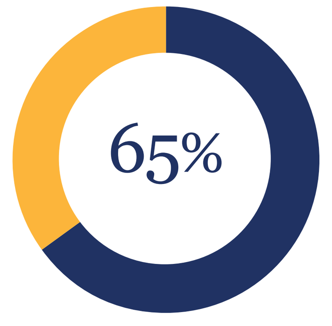
56% of patients improved* their nutritional status in just 90 days

*Any improvement from severe to moderate/no malnutrition per GLIM

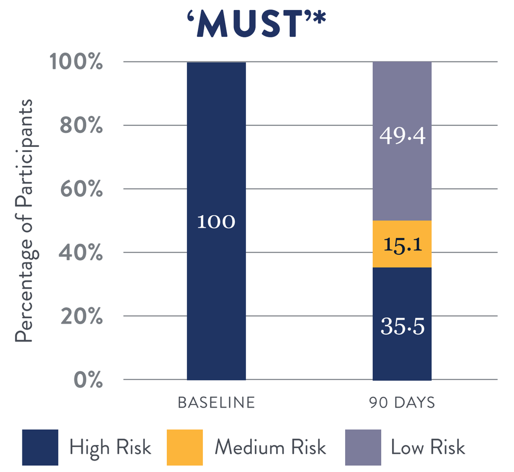
MALNUTRITION RISK


75%

of patients did not experience clinically significant weight loss

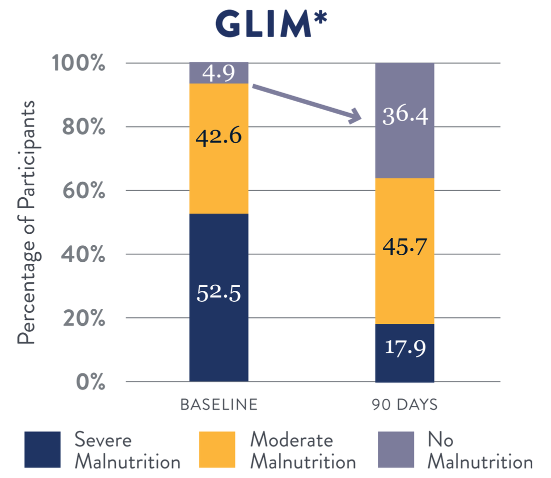

65%

improved their MN risk category (p<0.0001)

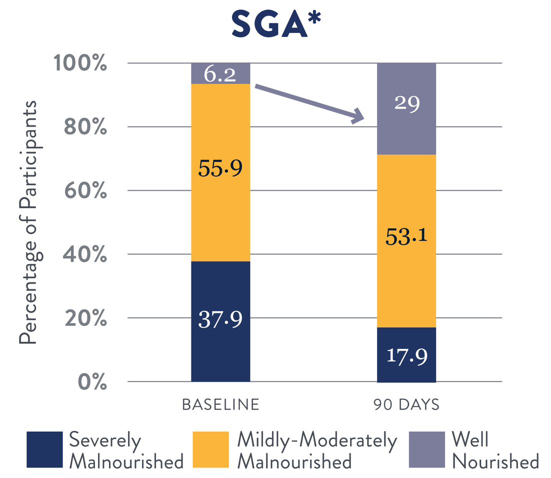

'MUST'*
100%
80%
60%
40%
20%
0%
Percentage of Participants
100
49.4
15.1
35.5
BASELINE
90 DAYS
High Risk
Medium Risk
Low Risk

*p<0.0001 (Bowker's Test)

MALNUTRITION DIAGNOSIS


GLIM*
100%
80%
60%
40%
20%
0%
Percentage of Participants
4.9
42.6
52.5
36.4
45.7
17.9
BASELINE
90 DAYS
Severe Malnutrition
Moderate Malnutrition
No Malnutrition

*p<0.0001 (Bowker's Test)


SGA*
100%
80%
60%
40%
20%
0%
Percentage of Participants
6.2
55.9
37.9
29
53.1
17.9
BASELINE
90 DAYS
Severely Malnourished
Mildly-Moderately Malnourished
Well Nourished

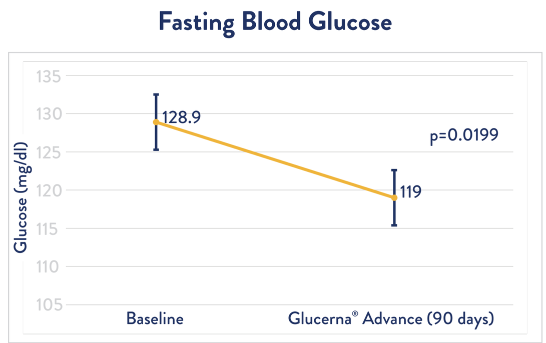
*p<0.0001 (Bowker's Test)

Significant improvement in muscle quantity and quality (mean change)

- **+1.3** rises/30s — **IMPROVED CHAIR STAND TEST** (±0.3, p<0.0001)
- **+1.1** kg — **INCREASED FAT-FREE MASS** (±0.4, p=0.0110)
- **+0.5** degrees — **INCREASED PHASE ANGLE** (±0.05, p<0.0001)
- **+2** kg — **INCREASED BODY CELL MASS** (±0.3, p<0.0001)
- **+0.8** kg — **INCREASED** HANDGRIP STRENGTH** SD(±0.4, p=0.049)

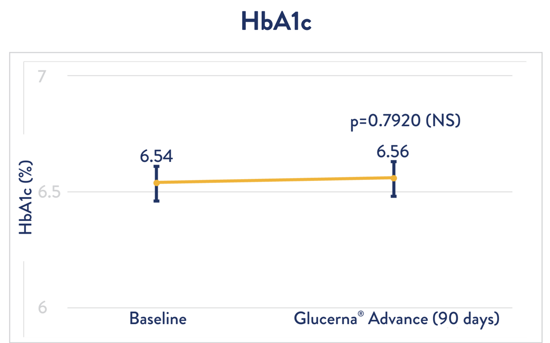
**In those patients taking antidiabetic medications (87% of studied population)

Improved Glycemic Control


Fasting Blood Glucose
135
130
125
120
115
110
105
Glucose (mg/dl)
128.9
119
p=0.0199
Baseline
Glucerna® Advance (90 days)

IMPROVED FASTING BLOOD GLUCOSE

(change:-9.9±4.2,mg/dL p=0.0199)


HbA1c
7
6.5
6
HbA1c (%)
6.54
6.56
p=0.7920 (NS)
Baseline
Glucerna® Advance (90 days)

A1C LEVELS REMAINED STABLE

Additional Results

- **32%** increase in Vitamin D levels (From 22.69 to 29.98 ng/mL, p=<0.0001)
- **26%** reduction in proportion of subjects with sarcopenia
- Triglycerydes reduced by **10%** (from 136.5 ± 6.3 to 123.5 ± 4.8 mg/dL, p=<0.001))
- Diabetes distress significantly reduced in just 90 days (by Diabetes distress scale, p=<0.001)
- Quality of life significantly improved (by EQ-ED, p=<0.01)
- Well tolerated in 100% of patients. ~70% of HCPs agreed that the ONS supported their patient's nutritional goals

CONCLUSION:

A 90-day multi-modal nutritional program using Glucerna® Advance with HMB, Lys and Arg:

+ demonstrated meaningful improvements in glycemic control, muscle quantity and quality, cardiometabolic health, quality of life and diabetes distress in people with T2DM and malnutrition.
+ was highly accepted by HCPs and people with T2DM and malnutrition and well suited to routine clinical practice

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Disclosures

M Camprubi Robles, G Guzman Rolo, G. E. Baggs are employees of Abbott. P. Suryawanshi is an employee of Statistical Services, Cognizant Technologies Solution Pvt. Ltd. Financial support for this study was provided by Abbott.

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ABBOTT