

THE IMPORTANCE OF MEAL ASSESSMENT IN ALS PATIENTS

Nicole Pizzorni¹, Daniela Ginocchio², Federica Bianchi², Sarah Feroldi², Chiara Gasperoni², Martina Falco¹, Chiara Limonta¹, Antonio Schindler¹, Gabriele Mora²

¹ Department of Biomedical and Clinical Sciences "L. Sacco", University of Milan, Milan, Italy

² Department of Neurological Rehabilitation, ALS Centre, Istituti Clinici Scientifici Maugeri IRCCS, Milan, Italy

BACKGROUND

Instrumental evaluation of swallowing is considered the "gold standard" for diagnosis of dysphagia (Giraldo-Cadavid *et al*, 2017). Safety and efficacy of swallowing can be assessed and the risk of pulmonary and nutritional complications can be appraised. However, swallowing performance during instrumental assessment may not be representative of what happens when consuming meals in everyday life. Indeed, as fatigue is a common feature in patients with amyotrophic lateral sclerosis (ALS) (Tabor *et al*, 2016), swallowing safety and efficacy may progressively decline during meal consumption and food and liquid oral intake may not be sufficient. Moreover, dependence for eating is a significant predictor of the risk of aspiration pneumonia (Langmore *et al*, 2002).

AIM

To investigate the relationship between the performance during meal consumption and the efficacy of oral and pharyngeal phases of swallowing in patients with ALS

MATERIAL & METHODS

Inclusion Criteria

Diagnosis of probable/definite ALS (revised El-Escorial criteria)
Totally oral nutrition
Aged between 18 and 90 years

Exclusion Criteria

Other neurological diseases
History of head and neck cancer
Gastroenterological diseases

SWALLOWING ASSESSMENT

Fiberoptic endoscopic evaluation of swallowing

Piecemeal deglutition
Penetration-Aspiration scale
Yale Pharyngeal Residue Rating scale
Dysphagia Outcome and Severity scale

Self-assessment

Eating Assessment Tool

Preparatory/Oral phase assessment

Test of Masticating and Swallowing Solids (TOMASS)
Tongue Strength and Resistance – Iowa
Oral Performance Instrument

Meal assessment

Mealtime Assessment Scale
Meal duration

RESULTS

35 patients were recruited between February and October 2017

Age at assessment	66.3±8.5
Age at diagnosis	62±8
Disease duration (years)	4.2±4.6
Site of onset	B 10/35 (28.6%) S 25/35 (71.4%)
ALSFRS-R	26.1±8.75

Table Demographical and clinical characteristics of the sample

Notes: data are reported as mean±ds or n/N (%) Legend: B = bulbar; S = spinal

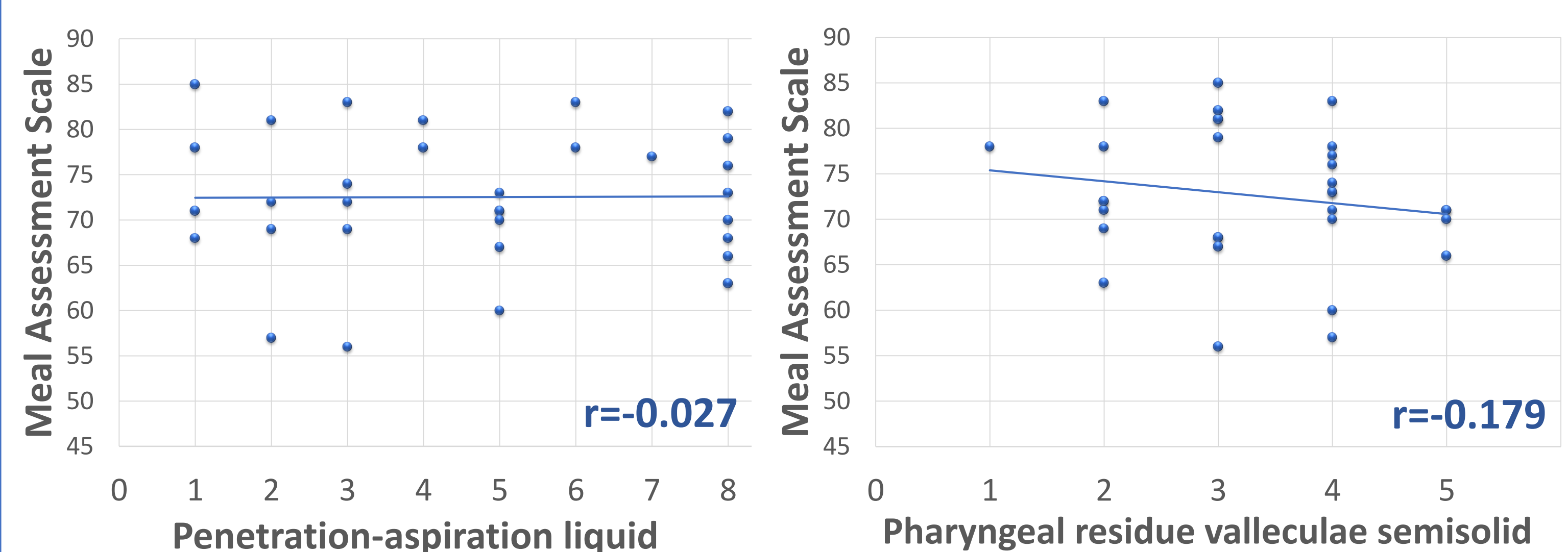
Statistically significant ($p < 0.05$) Spearman's correlation coefficients:

- Meal Assessment Scale and: self-assessment ($r = -0.588$), tongue strength ($r = 0.539$), TOMASS total time ($r = -0.465$) and Dysphagia Outcome and Severity Scale ($r = 0.389$)
- Meal duration and: piecemeal deglutition with liquids ($r = 0.370$)

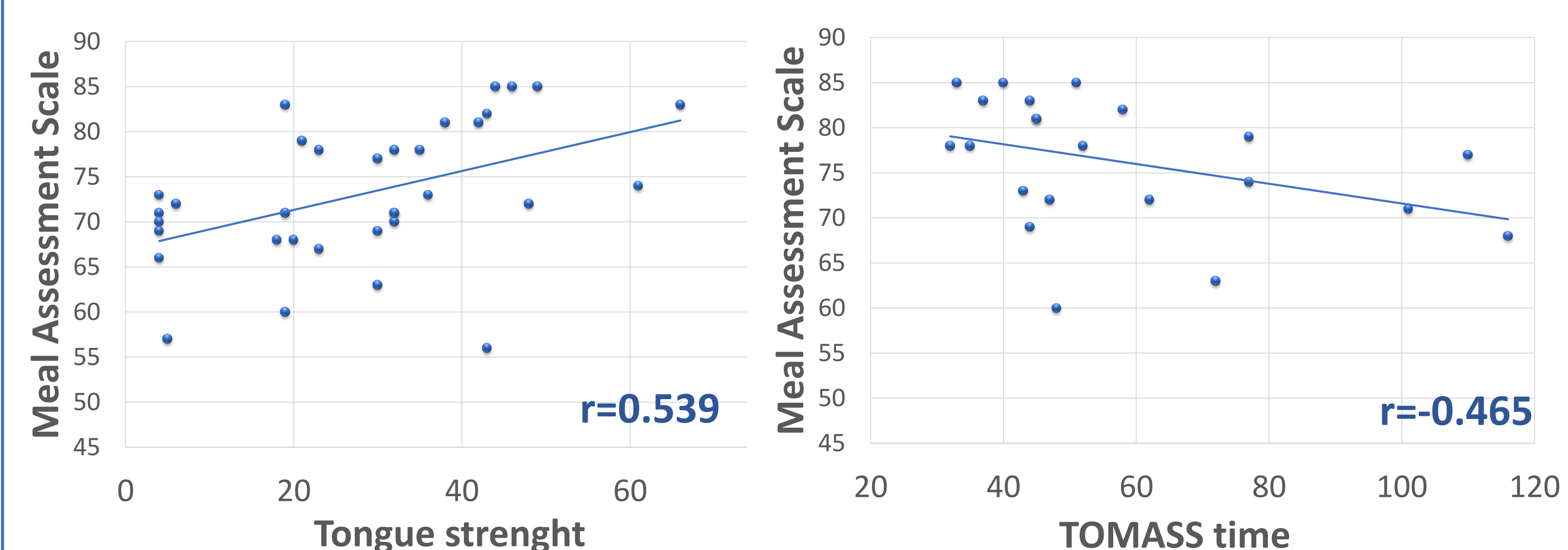
CONCLUSIONS

- Instrumental assessment of swallowing may not be exhaustive in patients with ALS as it does not predict patient's performance during meals
- Efficacy of swallowing preparatory and oral phases seems to be related to performance at meal more than pharyngeal phase
- A comprehensive swallowing evaluation in patients with ALS, including instrumental, oral phase and mealtime assessments, is necessary in order to estimate the risk of both pulmonary and nutritional complications related to dysphagia

FIBEROPTIC ENDOSCOPIC EVALUATION OF SWALLOWING



PREPARATORY/ORAL PHASE OF SWALLOWING



REFERENCES

- Giraldo-Cadavid LF, Leal-Leaño LR, Leon-Basantes GA, Bastidas AR, Garcia R, Ovalle S, Abondano-Garavito JE. Accuracy of endoscopic and videofluoroscopic evaluations of swallowing for oropharyngeal dysphagia. *Laryngoscope* 2017;127:2002-10.
- Langmore SE, Skarupski KA, Park PS, Fries BE. Predictors of aspiration pneumonia in nursing home residents. *Dysphagia* 2002;17:298-307.
- Tabor L, Gaziano J, Watts S, Robison R, Plowman EK. Defining Swallowing-Related Quality of Life Profiles in Individuals with Amyotrophic Lateral Sclerosis. *Dysphagia* 2016;31:376-82.