

Initial Psychometric Assessment of a Functional Oral Intake Scale for Dysphagia in Stroke Patients

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Functional Oral Intake

- Defining “Functional Oral Intake”
 - ✓ Amount and Type of Food Eaten Safely by Mouth
 - ✓ Special Preparations
 - ✓ Maneuvers and/or Compensations
 - ✓ Supervision/Independence
 - ✓ Feeding Adjustments
 - ✓ Other Issues...
 - Saliva Control
 - Psychosocial Issues
 - Disease Specific Issues

Functional Oral Intake

Defining “Functional Oral Intake” – One Perspective

A “Functional Oral Intake Scale” should include
(perhaps at a minimum) ...

- Consideration of type and amount of food/liquid consumed safely by mouth
- Consideration of special food preparations
- Consideration of individual compensations/maneuvers that are needed to consume food/liquid by mouth

Functional Oral Intake

A “Functional Oral Intake Scale” should have demonstrated....

Reliability and Validity

To improve its clinical application across environments...it should be sufficiently robust to apply to many clinical situations and sufficiently...

Sensitive to Document Change

Functional Oral Intake

A sampling of scales that evaluate “oral intake”...

- ASHA NOMS (1998)
- Enderby Therapy Outcome Measures (1997)
- Dysphagia Outcome and Severity Scale (1999)
- Functional Outcome Swallowing Scale (1999)
- Performance Scale for H/N Ca Patients (1990)
- ALS Severity Scale (1989)

**There are others.....

Functional Oral Intake

<i>SCALE</i>	<i>RELIABLE</i>	<i>VALID</i>	<i>SENSITIVE</i>
NOMS			X
TOMS			X
DOSS	X		
FOSS			
Perform H/N	X	X	X
ALS	X		X

Functional Oral Intake Scale (FOIS)

- 7 point ordinal scale intended to estimate the type and amount of adequate/safe oral intake with consideration for special food preparation and/or required compensations.
- Based on clinician interpretation of patient report, medical records, and/or dietary journals
- Items selected by clinician survey and reduced to 7 point scale by clinical application, review by experienced clinicians, and consistency with perspective of scale....

Functional Oral Intake Scale (FOIS)

Levels:

- | | |
|--------------|---|
| Non
Oral | 1. Nothing by mouth (NPO) |
| | 2. Tube dependent with minimal attempts of food or liquid |
| | 3. Tube dependent with consistent intake of liquid or food |
| <hr/> | |
| Full
Oral | 4. Total oral diet of a single consistency |
| | 5. Total oral diet with multiple consistencies but requiring special preparation or compensations. |
| | 6. Total oral diet with multiple consistencies without special preparation, but with specific food limitations. |
| | 7. Total oral diet with no restriction. |

Functional Oral Intake Scale (FOIS)

Purpose of Study....

- To estimate inter-rater Reliability of FOIS
- To estimate Validity of FOIS
 - Agreement with Scale (Consensual Validity)
 - Association with Related Scales (Criterion Validity)
 - Association with Swallow Physiology Measures (Cross Validation)
- To evaluate Sensitivity to Change

Functional Oral Intake Scale (FOIS)

- *Reliability....Interrater*

- 6 experienced SLPs (no training)
- 84 patient records
- Rank Correlations between .98 and .99
- Average Kappa values from .86 to .91
- Perfect agreement across all judges on 85% of patients

Functional Oral Intake Scale (FOIS)

- Validity.....
 - *Consensual Validity* (agreement with scale)
 - 63 experienced SLPs
 - Ranked severity of scale points (NPO and Total Oral were benchmarked)
 - Agreement with intended scores: 83% to 98%
 - Kendall's concordance (chance) = .89

Functional Oral Intake Scale (FOIS)

- Validity.....
 - *Criterion Validity* (compared to related scales)
 - 302 acute stroke patients – Mann database
 - Measurement at Onset (average 2.7 days)
 - Repeat at 1 month
 - Barthel, Rankin, MASA

Functional Oral Intake Scale (FOIS)

- Validity.....
 - *Cross Validation* (compared to physiological swallowing measures)
 - 302 acute stroke patients – Mann database
 - Measured at Onset only
 - Aspiration Scale
 - Fluorographic Examination Scale - Severity

Validity Data – At Stroke Onset

302 Patients

TEST	χ^2	(<i>p</i>)	Correlation
Rankin	28.6	(.000)	-.30
Barthel	39.9	(.000)	-.35
MASA	33.8	(.000)	-.50
Aspiration Scale	11.7	(.02)	-.21
Fluro Severity	27.3	(.007)	-.28

Validity Data – At 1 Month

302 Patients

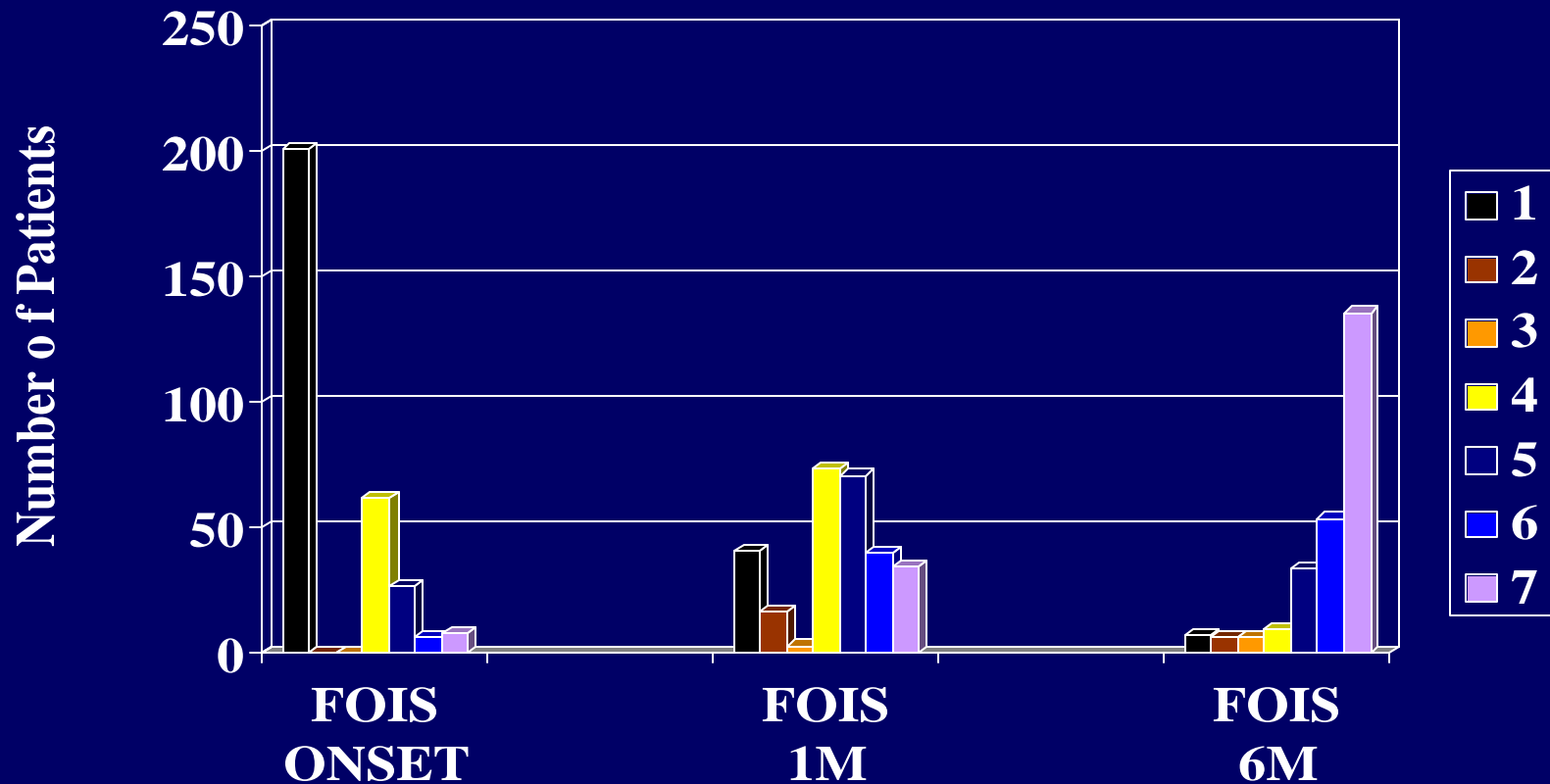
TEST	χ^2	(<i>p</i>)	Correlation
Rankin	64.9	(.000)	-.48
Barthel	88.7	(.000)	-.54
MASA	60.7	(.000)	-.75

Functional Oral Intake Scale (FOIS)

- *Sensitivity to Change* (302 acute stroke patients)
 - Change in FOIS profiles across time points for the group
 - FOIS profiles reflected the change in Tx intensity (Treatment vs Usual Care only)

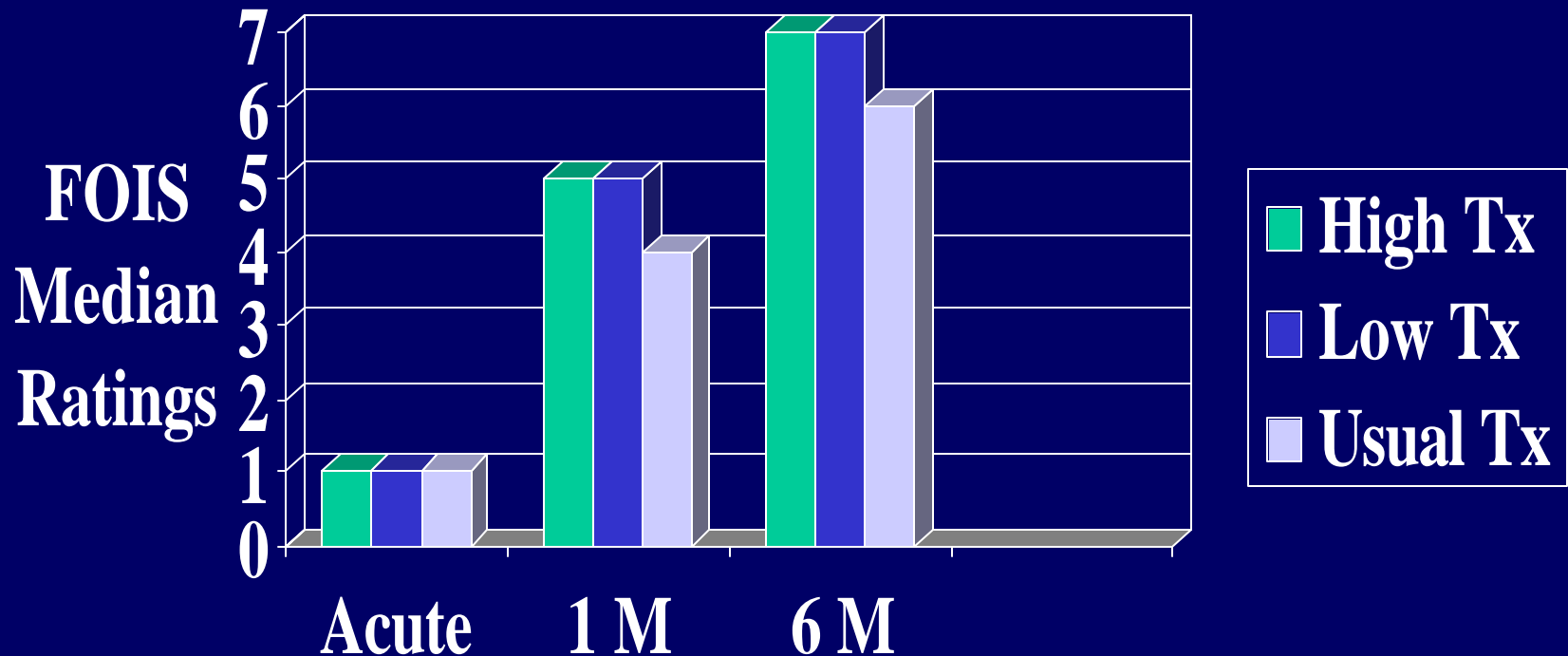
Functional Oral Intake Scale (FOIS)

- *Sensitivity to Change* (302 acute stroke patients)



Functional Oral Intake Scale (FOIS)

- *Sensitivity to Change* (302 acute stroke patients)



Functional Oral Intake Scale (FOIS)

- How might we use Oral Intake Scales???
- To estimate functional eating ability at any time point
- To “measure” change in functional eating ability over time
- To involve patients in planning dysphagia treatment

Functional Oral Intake Scale (FOIS)

- Several scales exist to “estimate” oral intake in dysphagia patients
- Most scales are part of larger “outcome” assessments
- Few scales demonstrate adequate reliability and/or validity
- Some scales demonstrate sensitivity to change
- The FOIS scale is a robust scale that demonstrates good initial reliability, validity and sensitivity to change in stroke patients