소아재활

발표일시 및 장소 : 10 월 19 일(토) 10:30-10:40 Room D(5F)

OP4-1-4

Can Eating and Drinking Ability Classification System(EDACS) be Used in Adults with Cerebral Palsy?

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Objective

The aim of this study was to demonstrate the interrater reliability of the Eating and Drinking Ability Classification System(EDACS) between swallowing occupational therapists(SwOTs) and between therapist and individuals with cerebral palsy(CP) or their caregivers. Also, we investigated the concurrent validity of the EDACS as well as the association with other functional classification scales.

Methods

This study recruited adults with a confirmed diagnosis of CP aged 20 years and older who are attending community centers specialized for CP. A SwOT conducted in-depth interview with every participant and/or caregiver for swallowing evaluation including EDACS, Functional Oral Intake Scale(FOIS), and swallowing-quality of life(SWAL-QOL). Afterwards, another SwOT and participants themselves or caregivers evaluated EDACS to assess the interrater reliability. Kendall's tau(Kτ) was calculated to show correlation between EDACS and FOIS, SWAL-QOL, Gross Motor Function Classification System(GMFCS), and Manual Ability Classification System(MACS) to demonstrate the concurrent validity. To underpin significant questions to distinguish each EDACS level, meal duration, and 5-Likert scale scores from every dysphagia symptom frequency and domain of SWAL-QOL were compared among EDACS levels, followed by regression analysis.

Result

A total of 117 adults with CP (37.9±12.5years; 40.2% female) were recruited, and 50(42.7%) were spastic and 61(52.1%) were dyskinetic CP. Interrater reliability proved almost perfect between SwOTs(κ=0.866, ICC=0.867 for EDACS; κ=0.713, ICC=0.885 for level of assistance), and between SwOT and participant/caregiver(κ=0.884, ICC=0.717 for EDACS; κ=0.823, ICC=826 for level of assistance). There was significant, but low correlation between EDACS and FOIS(Kτ=-0.346), SWAL-QoL(Kτ=-0.389), MACS(Kτ=0.180) and no correlation with GMFCS. However, the spastic subgroup demonstrated better correlation with FOIS(Kτ=-0.433), MACS(Kτ=0.406), and even with GMFCS(Kτ=0.308, p=0.013), while dyskinetic subgroup showed correlation neither with GMFCS nor MACS. The EDACS level of assistance was far better correlated with GMFCS(Kτ=0.497) and MACS(Kτ=0.584) than FOIS or SWAL-QOL both in spastic and dyskinetic subgroup. The odds of being in a higher EDACS level increased significantly with decreasing FOIS, total symptom score, SWAL-QOL, and

increasing mealtime. The actual mealtimes and difficulties with eating duration are the most important factor in differentiating level I and II, while total symptom score and SWAL-QOL, especially biting or chewing difficulty and choking on food, are significant for level II and III.

Conclusion

The EDACS is a reliable, valid tool to classify eating and drinking ability in adults with CP. Because correlation with gait or hand function is less prominent in adult population than in children, EDACS is a valuable adjunct for comprehensive functional classification in adults with CP.

Table 1.

	Rater 2						
Rater 1	I	II	III	IV	V	Total (%)	Agreement (%)
I	**19**	2	0	0	0	21 (17.9)	90.5
II	5	**31**	4	0	0	40 (34.2)	77.5
III	1	7	**36**	1	0	45 (38.5)	80.0
IV	0	0	3	**7**	0	10 (8.5)	70.0
V	0	0	0	0	**1**	1 (0.9)	100.0

	Rater 2				
Rater 1	Independent	Requires assistance	Totally dependent	Total (%)	Agreement (%)
Independent	**38**	2	0	40 (34.2)	95.0
Requires assistance	7	**46**	1	54 (46.2)	85.2
Totally dependent	0	4	**19**	23 (19.7)	82.6

	Participant self or Caregiver						
Rater 1	I	II	III	IV	V	Total (%)	Agreement (%)
I	**12**	1	0	0	0	13 (24.1)	92.3
II	7	**6**	3	0	0	16 (29.6)	37.5
III	3	4	**12**	1	0	20 (37.0)	60.0
IV	0	1	1	**2**	0	4 (7.4)	50.0
V	0	0	0	0	**1**	1 (1.9)	100.0
Total	22	12	16	3	1	54 (100)	61.1

	Participant self or Caregiver				
Rater 1	Independent	Requires assistance	Totally dependent	Total (%)	Agreement (%)
Independent	**18**	0	0	18 (33.3)	100.0
Requires assistance	6	**16**	2	24 (44.4)	66.7
Totally dependent	0	3	**9**	12 (22.2)	75.0
Total	24	19	11	54 (100)	79.6

Values in bold type indicate cases in perfect agreement.

Overall agreement for the EDACS level and level of assistance were 80.3%, and 88.0%, respectively between swallowing occupational therapists.

Table 2.

Total (n=117)	EDACS	EDACS level of assistance
FOIS	-0.346 (<0.001)	-0.183 (0.028)
SWAL-QOL	-0.389 (<0.001)	-0.234 (0.002)
Total symptom	-0.476 (<0.001)	-0.263 (<0.001)
GMFCS	0.140 (0.079)	0.497 (<0.001)
MACS	0.180 (0.022)	0.584 (<0.001)
Spastic (n=50)		
FOIS	-0.433 (<0.001)	-0.155 (0.228)
SWAL-QOL	-0.360 (0.001)	-0.289 (0.010)
Total symptom	-0.379 (<0.001)	-0.423 (<0.001)
GMFCS	0.308 (0.013)	0.538 (<0.001)
MACS	0.406 (<0.001)	0.536 (<0.001)
Dyskinetic (n=61)		
FOIS	-0.286 (0.012)	-0.242 (0.039)
SWAL-QOL	-0.395 (<0.001)	-0.193 (0.058)
Total symptom	-0.561 (<0.001)	-0.139 (0.179)
GMFCS	0.092 (0.421)	0.527 (<0.001)
MACS	0.074 (0.507)	0.622 (<0.001)

FOIS, Functional Oral Intake Scale; SWAL-QOL, swallowing-quality of life; GMFCS, Gross Motor Function Classification System; MACS, Manual Ability Classification System.

Values are Kendall's tau-b ($K\tau$) with p-value in parentheses.

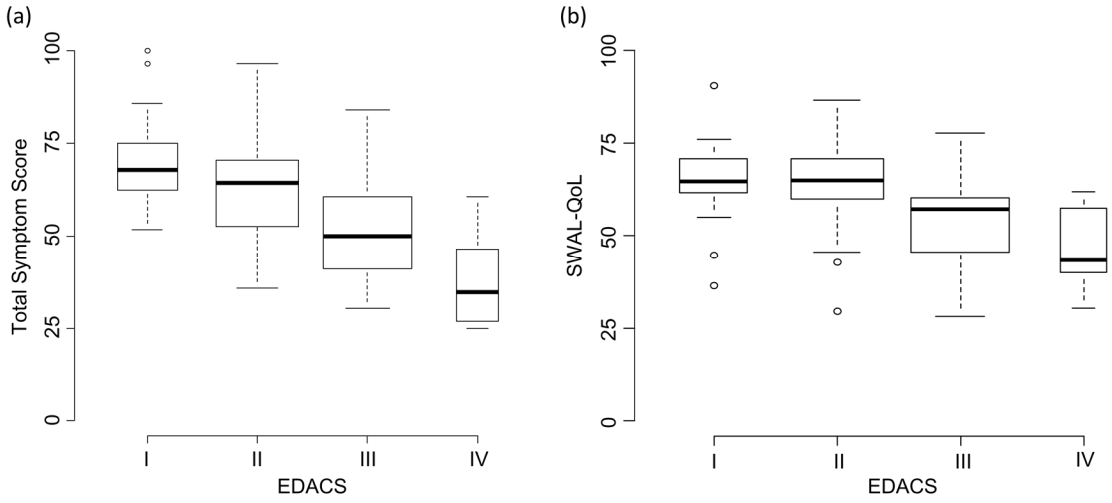

Fig. 1