

소아재활

게시일시 및 장소 : 10 월 19 일(토) 08:30-12:30 Room G(3F)

질의응답 일시 및 장소 : 10 월 19 일(토) 11:00-11:30 Room G(3F)

P 3-4

Videofluoroscopic Swallowing Study Findings in Full-Term and Preterm Neonates with Dysphagia

Seung-Hwan Jung^{1*}, Tae-Woo Nam², Jae-Eun Lee¹, Hyun-Woo Jung², Tae-Du Jung², Ae-Ryoung Kim¹⁺, Yang-Soo Lee¹

Kyungpook National University Hospital, Department of Rehabilitation Medicine¹,
Kyungpook National University Chilgok Hospital, Department of Rehabilitation Medicine²

Objective

There has been an increased demand on evaluation of swallowing disorders in the neonatal period. However a few studies have been conducted on subjects from birth to 28 days of age. Therefore this study analyzed the clinical features of neonates with dysphagia symptoms and compared preterm to full-term neonates through videofluoroscopic swallowing study (VFSS) findings.

Method

Total 38 neonates registered in our Neonates Intensive Care Unit(NICU) requested for dysphagia evaluation from 2017 to 2019 were selected for this review. They underwent VFSS before 28 days of age, and when they were evaluated more than once, only the first VFSS finding was included. Many clinical characteristics were examined including sex, gestational age at birth, birth weights, the reason of dysphagia evaluation request and suck to swallow ratio. Infants with congenital anomaly or hereditary disease were excluded to see the true influence of gestational age on swallowing disorder. Mann-Whitney U-test and χ^2 test were conducted as statistic measurement, and the level of significance was set at $p < 0.05$. All analyses were performed using SPSS 20 (IBM, Armonk, NY, USA).

Results

There were 66 neonates who were requested for dysphagia evaluation from 2017 to 2019 and we excluded 28 patients with congenital disease such as congenital heart defect, encephalopathy, cleft palate, or chromosomal defect/hereditary syndrome. Of the 38 neonates left, 21 were male and 17 were female. Twenty-five were full-terms born at 37 weeks or later while 13 were preterm infants born earlier than 37 weeks. Mean suck to swallow ratio was $2.42 \pm 1.15:1$, and mean weight at discharge was 3370.2 ± 563.0 g (Table 1). Reasons for VFSS request were poor sucking in 21 cases (55.3%), desaturation in 12 cases (31.6%), cough in 3 cases (7.9%), suspicious aspiration pneumonia and regurgitation in 1 case (2.6%), respectively (Table 2). VFSS findings revealed weak sucking in 22 (57.9%), followed by decreased sustained sucking in 14 (36.8%) infants in the oral phase. Delayed

swallowing reflex (2 cases, 5.3%) and penetration (16 cases, 42.1%) were significantly different between the 2 groups (Table 3). In this study we identified suck to swallowing ratio as a significantly different finding between preterm and full-term groups, delayed swallowing reflex and penetration showed significant difference as well. However there was no significant difference in aspiration between two groups while prevalence were 3 cases (23.1%) and 1(4.0%), respectively.

Conclusion

This study showed the pharyngeal phase contribute more to neonatal swallowing function than the oral phase does, as suck-to-swallowing ratio showed significant different between preterm and full-term groups. However there was no significance in aspiration, which means the difference between two groups does not always lead to aspiration itself. When neonates develop well with proper dysphagia therapy the swallowing difficulty could be overcome.

Table 1. Demographic characteristics. Values are presented as mean±standard deviation, (%). *p<0.05, significantly different between full-term and preterm groups according to Mann-Whitney U-test.

	All neonates(n=38)	Preterm(n=13)	Fullterm(n=25)	p-value
Gender				
Boys	21(55.3)	6(46.1)	15(60.0)	
Girls	17(44.7)	7(53.9)	10(40.0)	
Chronologic age(days)	12.2±5.1	12.3±4.8	12.2±5.4	0.945
Gestational age(weeks)	37.4±1.4	35.7±0.8*	38.3±0.9*	0.000*
<37	13			
≥37	25			
Birth weight(g)	3022±542.3	2625.4±491.7*	3228.8±450.3*	0.001*
<2500	5			
≥2500	33			
Weight at discharge(g)	3370.2±563.0	2975.2±513.3*	3575.6±478.0*	0.001*
Method of feeding at discharge(bottle)	31(81.6)	10(77.0)	21(84.0)	
Suck to swallow ratio	2.42±1.15	2.85±1.1	2.20±1.1	0.038*

Table 2. Reasons for VFSS requests. No request was significantly different between two groups according to χ^2 test.

	All neonates(n=38)	Preterm(n=13)	Fullterm(n=25)
Poor sucking	21(55.3)	10(76.9)	11(44.0)
Desaturation	12(31.6)	2(15.4)	10(40.0)
Cough	3(7.9)	1(7.7)	2(8.0)
Suspicious aspiration pneumonia	1(2.6)	0(0)	1(4.0)
Regurgitation	1(2.6)	0(0)	1(4.0)
Total	38(100)	13(100)	25(100)

Table 3. Videofluoroscopic swallowing study findings. * $p < 0.05$, significantly different between 2 groups according to χ^2 test.

	All neonates(n=38)	Preterm(n=13)	Fullterm(n=25)
Weak sucking	22(57.9)	9(69.2)	13(52.0)
Decreased sustained sucking	14(36.8)	7(53.8)	7(28.0)
Delayed swallowing reflex*	2(5.3)	2(15.4) *	0(0.0) *
Insufficient laryngeal closure	5(13.2)	2(15.4)	3(12.0)
Residue	7(18.4)	2(15.4)	5(20.0)
Penetration*	16(42.1)	9(69.2) *	7(28.0) *
Aspiration	4(10.5)	3(23.1)	1(4.0)