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Clinical characteritics related radionuclitde salivagram in chronic brain injuried patients

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Objective
Pneumonia is most common complication and is related with mortality in chronic brain injuried patients. Saliva aspiration is common finding in chronic brain injuried patients with pneumonia. So we investigated the correlation between clinical characteristics and radinuclitide salivagram in chronic brain injuried patients.

Subjective and Method
We investigated retrospective medical record finding of patients with dysphagia in chronic brain injuried from January 2016 to March 2018. Motor-neuron disease, combined cord injury, non brain tumor and Alzheimer dementia patients were excluded. Then 31 patients had examination of radionuclitide salivagram and VFSS. We checked clinical character such as age, duration of disease, MMSE-K, K-MBI, Tracheostomy state, feeding method, brain lesion, VFSS PAS and VFSS Dysphagia scoring. Group comparison according to salivagram findings was performed using t-test, Pearson chi-square test and mutiple logistic regression analysis with forward stepwise.

Results
In 31 chronic brain injuries patients 23 patients showed positive finding in radionuclitide salivagram.   Mean age was 65.3±14.42. 8 patients showed negative finidngs in radionuclitide salivagram and mean age was 60.37±22.41. Most cause of brain injuried was stroke in both positive and negitive finding in salivagram.   In comparison findings between positive and negitive salivagram PAS, VFSS Dysphagia scoring, tracheostomy state and tube feeding were correlated with positive radionuclitide salivagram. Age and disesa duration at salivagram were not correlated with positive salivagram. And Tracheostomy state, PAS factor were significantly associated with postive salivagram by multiple logistic regression with forward stepwise.

Conclusion
In chronic brain injuried patients high PAS, VFSS Dysphagia scoring, tracheotomy state, non-oral feeding state were correlated with positive radionuclitide salivagram. Saliva aspiration is related with aspiration pnemonia so it is poor functional factor in chronic brain injuried. Age and disease duration are not related with positive radionuclitde salivagram. So if we consider that swallowing training or tracheostomy training in chronic brain injuried patients we evelated saliva aspiration risk and associated factors.

Table1. Characteristics and comparison of brain injured patients with and without on salivagram findings

	Saliva aspiration (23)	Saliva non-aspiration (8)	p-value
Age	65.3±14.42	60.37±22.41	0.47
Sex	M : 13	M : 7	
	F : 10	F : 1	
Disease cause	Stroke .19 (Inf.4, Hemo.12)	Stroke . 7(Inf. 2, Hemo .5)	
	TBI : 4	TBI : 1	
	HBI : 1, IPD : 1, Tumor :1		
Lesion	Bilateral : 10, Unilateral : 13	Bilateral : 2, Unilateral : 6	
Duration(month)	12.04±11.09	19±24.06	0.27
K-MBI	10.91±19.23	17.87±16.19	0.36
MMSE-K	6.47±10.02	10.37±10.58	0.37
VFSS PAS	6.26+2.78	2+2.56	0.01*
VFSS Dysphagia scoring	53.13±18.21	31±13.27	0.04*
Feeding state	Tube : 23 Oral : 0	Tube : 5, Oral :3	

Table2. Correlation factor between clinical characteristics and positive salivagram finding

	상관계수	p-value
Age	0.135	0.47
Duration	-0.202	0.27
PAS	0.577	0.001
VFSS Dysphagia Scoring	0.544	0.004
Tube feeding	0.555	0.001
Tracheostomy	0.644	0.001

Table3. Multiple logistic regression analysis with stepwise method of clinical characteristics related positive salivagram finding

Parameter	Beta coefficient	Standard error	t	p-value
Tracheostomy	0.453	0.1	3.55	0.001
PAS	0.302	0.19	2.16	0.04