

Hammersmith Infant Neurologic Examination (HINE) in the Assessment of Infants with Dysphagia

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Background: Over the past several years, significant advancements have been made in the recognition and diagnosis of dysphagia. Intensive therapeutic interventions and diagnostic tools, such as the video fluoroscopic swallow study (VFSS), have been developed to assess and modify swallowing mechanics and ensure safe swallowing to promote growth in children diagnosed with dysphagia. Although there have been significant increases in improving dysphagia, there are minimal tools available to predict the timing of dysphagia resolution. Many children with dysphagia have impaired oromotor function and difficulty in mobilizing and clearing airway secretion. This is partly due to dyscoordination of the muscles involved in swallowing, which has been theorized to be related to reduced muscle tone. The Hammersmith Infant Neurological Examination (HINE) has been specifically designed and optimized to identify differences in motor tone and coordination in infant development. HINE is currently used in the diagnosis and prognosis of infants at risk for developing cerebral palsy (CP).

Methods: In this retrospective study 67 patients were examined using VFSS to assess if a lower HINE score is associated with longer resolution times for aspiration.

Results: Using this data, it was found that a HINE score below or above the CP cutoff score directly correlated with the recommendation of feeding (bottle modifications, thickening of liquid, or tube feeding) ($p=0.018$). HINE scores were also utilized to demonstrate a linear regression model capable of predicting the approximate duration of dysphagia resolution ($p=0.041$).

Conclusion: Future research can aim to develop a more comprehensive framework for the resolution of penetration and aspiration associated with dysphagia.