Data-driven care pathway for children over 36 months of age with motor speech disorders.

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Abstract (451 words)

A significant body of research has been carried out in the area of optimal intervention parameters for subtypes of speech sound disorders (SSD) in children (e.g., Allen, 2013; Baker 2012; Williams, 2012). However, there is only limited information available regarding optimal intervention protocols for children with Motor Speech Disorders (MSD). We report outcomes from a large-scale motor speech research project (N = 98) funded by the Ontario Ministry of Children, Community and Social Services. The project assessed treatment outcomes and factors affecting these treatment outcomes in children with Motor Speech Disorders (MSD) between the ages of 3 and 10 years. The aim of the project was three-fold: (a) To establish the magnitude of treatment effects for outcome measures related to the speech sound system (articulation/ phonology), speech intelligibility and functional communication in children with MSD including those with and without childhood apraxia of speech (CAS), (b) Explore the relationship between treatment dose frequency (1x vs. 2x week treatment sessions) and outcome measures, to aid the development of an evidence-based service model or "care pathway" for children with MSD living in Ontario, and (c) To identify factors that contribute to positive treatment outcomes in children with MSD.

Overall, the results indicated that the motor-speech treatment provided (motor speech treatment protocol; Namasivayam et al., 2015a) was effective in improving articulation, speech intelligibility and functional outcomes in children with MSD. In general, the magnitude of change for the higher dose frequency groups (2x/ week) was larger compared to the lower dose frequency groups (1x/week). However, for children with CAS only higher dose frequency (2×/ week) led to significantly better outcomes for articulation and functional communication compared with lower 1×/week intervention (Namasivayam et al., 2015b). Both low- and high-dose frequency treatments yielded similar results for children with Speech Motor Delay (Namasivayam et al., 2019). Recently (Namasivayam et al., in prep), we estimated the association between minimal clinically important difference (MCID) in functional outcomes and multiple predictors (diagnostic features, amount of home training in minutes, intervention dose, age of child, gender, severity (percent consonants correct; Goldman-Fristoe Test of Articulation–Second Edition- Standard score)) using multivariable logistic regression models. The presence or absence of CAS features (on the diagnostic rating scale of the Kaufman Speech to Praxis Test) was the strongest and only significant predictor of whether a child demonstrated clinically relevant change in functional outcomes at the end of treatment. The presence of CAS features

typically resulted in limited treatment gains. The research project has led to the development of a evidence-based pilot care pathway to support identification and intervention planning for children over 36 months of age with MSD. The evidence-based care pathway is currently in the clinical implementation phase in the province of Ontario, Canada.

Relevant References:

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