Communication Profiles Following a Right Hemisphere Stroke

A stroke will affect everyone differently. The cognitive communication disorder (CCD) that occurs after a right hemisphere stroke similarly varies in key characteristics from person to person (Blake et al., 2002). Communication impairments may be evident to varying degrees across linguistic, extralinguistic and paralinguistic areas of language. Cognitive impairments also vary with impairments evident in executive functions, attention and social cognition. Lesion-symptom mapping studies are starting to expand our understanding of sites of lesion associated with distinct presentations following a right hemisphere stroke. Much work is still needed to understand the co-occurrence and relationship between communication and cognitive impairments. This document provides an overview of work that identified patterns of co-occurring impairments or profiles.

Four Profiles

Four distinct communication profiles emerged in research that used The Protocole Montréal d'Évaluation de la Communication (Protocole MEC: Joanette et al 2004). Each profile is characterised by a cluster of communication strengths and impairments (Ferré & Joanette, 2016). Spoken discourse and aprosodia (impaired ability to alter prosodic parameters to convey emotion or linguistic meaning) emerged as the most frequent communication impairments following a right hemisphere stroke (Joanette et al., 2004).

Cluster 1: Mainly characterised by prosodic impairment (aprosodia).

Cluster 2: Predominantly or only difficulty with conversational discourse and expressive emotional prosody.

Cluster 3: A combination of deficits that are not extensive, involving conversation discourse, narrative discourse (story retelling), receptive linguistic prosody, expressive (repetition) linguistic prosody, and semantic judgment.

Cluster 4: Extensive and more severe impairments in all the assessment tasks which included impairments in conversational discourse, metaphor interpretation, verbal fluency without constraint, receptive linguistic and emotional prosody, expressive (repetition) linguistic and emotional prosody, and semantic judgment.

The four communication profiles were identified when assessing individuals with right hemisphere stroke from different linguistic backgrounds (Spanish, Brazilian Portuguese and French)(Ferré et al 2012).

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Discourse Profiles

The linguistic domain of communication has been researched most extensively, in particular spoken discourse. Heterogeneity was present on analysis of different discourse genres (conversation, narrative, descriptive). When considering reports of spoken discourse impairment, profiles emerge based on the quantity and quality of production (e.g. Davis et al., 1997; Marini et al., 2005).

Blake and colleagues (2002) noted varying patterns of efficiency and appropriateness of spoken discourse in their hyperresponsive (i.e. verbose/talkative, tangential, impulsive, disinhibited) and hyporesponsive patterns (i.e. paucity of speech, slow responses, poor initiation, unelaborated speech). Each profile was found to occur with a similar frequency in their sample at 41.5% and 39% respectively. Five patterns of discourse production were identified by Hillis Trupe and colleagues (1985) based on efficiency and appropriateness, or quality. The profiles were labelled as 1) irrelevant, 2) paucity, 3) digressive, 4) verbose, and 5) normal.

Clinical Implications

Cognitive communication disorders are diagnosed in as many as 66% of first onset right hemisphere strokes across both acute and rehabilitation stages of stroke recovery (Hewetson et al., 2017) and up to 80% of those in an inpatient rehabilitation unit (Côté et al., 2007). With heterogeneity of clinical presentation being expected, it is important for both acute screening tools and comprehensive diagnostic batteries to detect the diversity of clinical profiles so that equitable access to speech pathology services can be ensured.

Assessment tools should not only consider communication domains of linguistic, extralinguistic and paralinguistic communication, but should also evaluate the impact of cognition on communication and explore different discourse genres. It is to be expected that multiple discourse samples would need to be gathered with conversational discourse likely to be the most predictive of CCD. The Montreal Evaluation of Communication is a diagnostic assessment battery that considers all communication domains and allows for evaluation in different languages inclusive of English. A standardised battery for evaluating discourse following right hemisphere stroke is not yet available. However, a standard protocol with recommended discourse elicitation tasks has been reported in the literature and can be accessed through RHDBank (https://rhd.talkbank.org) (Minga et al., 2021).

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