NSW Speech Pathology Evidence Based Practice Network

Critically Appraised Paper: TREATMENT (CAP-T)

CLINICAL BOTTOM LINE: For children with CAS and other cognitive difficulties who have received previous speech intervention with minimal success, implementing high and low tech AAC options greatly improved functional communication. This included initiating and maintaining conversations, repairing communication breakdowns, facilitating language development and improving academic success. Improvement in the children's' behaviour was also reported.

Clinical Question *In children with CAS does intervention (e.g., DTTC, Integrated Phonological Awareness Approach, AAC, Combined Melodic Intonation Therapy + Multimodal approach, +/- use of PML principles) improve speech (+/- literacy, overall communication skill) when compared to no intervention?*

Citation: Cumley G. & Swanson, S. (1999). Augmentative and Alternative Communication Options for Children with Developmental Apraxia of Speech: Three Case Studies. *AAC Augmentative and Alternative Communication* (15), 110-125.

Method: Design and Procedure

- Single Case study design
- 3 individual case studies of children with CAS. All had multimodal high & low tech AAC systems implemented
- Treatment was individualised. All AAC devised was client-centred and community-based (home, preschool, school and external community e.g. grocery store)
- Boardmaker used for all 3 participants
- 2 of 3 participants had speech therapy along with AAC implementation
- Types of low & high tech AAC used:
  - Themed communication boards e.g. doll play, store, academic subjects
  - Remnant books for home, preschool and school
  - Picture Communication Dictionary/Symbol Dictionary
  - *WOLF* voice output communication system
  - Sharp Memo Writer voice output communication system
- Use of AAC:
  - Expanding utterances
  - Sharing past episodic events
  - Social interaction (initiating and maintaining communication exchanges)
  - Academic participation
  - Repairing communication breakdown
  - Community participation e.g. asking for assistance, or sharing personal information with unfamiliar communication partners
- Service Delivery
  - Kelly (early primary student): Daily hour long sessions for 6 months
  - Ann (preschooler): Approximately 6 months treatment, intensity not specified
  - Carl (high school student): not specified
- Data collection on:
  - Establishing communication with others
  - Maintaining communication with others
  - Repairing communication breakdowns
  - Participating in different communicative environments
  - Increasing language abilities (e.g. MLU)

Critically Appraised Paper: TREATMENT (CAP-T) *continued....*

Method: Participants 3 children with CAS:
Ann: 3 years 7 months, repaired submucus cleft, 1q-syndrome. Regular ear infections. Behaviour difficulties associated with communication difficulties. Diagnosed with speech and motor planning difficulties as well as language delay at assessment
Kelly: 8 year old with cognitive and language delays. Home-based therapy for 12 months, next total communication classroom,, then home-schooled for 2 years. Attempt to use sign language, unsuccessful
Carl: 12 year old with mild-mod cognitive delay. Attended hearing support classroom for 8 years but hearing WNL. Minimal improvement with prior intensive therapy targeting articulation and sign language.

Results:
Ann – began using the WOLF to make 2 & 3 word utterances. 'embellished' her voice output aide with verbalisations and gestures. Supported her ability to participate in conversations and repair breakdowns. MLU increased from 2.6 to 4.6. minimal improvement with intelligibility
Kelly – minimal articulation skill development with speech intervention. Significant increase in functional communication using AAC. Improved behaviour
Carl – able to manage breakdowns instead of relying only on partner to figure out message, increased peer interaction, more independent in community, improved behaviour

Level of Evidence (NHMRC, 2009) *Circle one* **I II III-1 III-2 III-3 IV**

Quality of Evidence: ❒Rated ❒ Not Rated
(i) rating system (e.g., PEDRo, SCED Scale from SpeechBITE) _____
(ii) score _____

Nature of Evidence: ❒ feasibility ❒efficacy study ❒effectiveness study

Relevance to practice
Participants different to clients at SCH, however would be similar to practices who treated children with more severe cognitive difficulties. Would be difficult to replicate frequency of therapy sessions in practice. Also many practices would have limited resources, including time to implement AAC in different contexts and access to high tech AAC.

Additional comments
Weaknesses:
– Overall: retrospectively written, methods not regulated, participants had co-morbid difficulties & did not investigate CAS only participants, minimal objective data
– Ann – Minimal description of functional communication skills with AAC. minimal discussion of amount of therapy with AAC or instruction
– Kelly & Carl – speech outcomes not discussed
Strengths:
– benefits seen at variety of ages
– examples of boards
– Kelly & Carl good description of different AAC options used
- Ann – objective data on language skills

Appraised By: EBP Paediatric Speech Group

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