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Hunter New England
Local Health District

Development of a clinical assessment for dysarthria (N-DAT):

The development & implementation of a
new assessment tool and use of E3BP.

Wendy Hackney & Kimberly Vietch (SPs)

Hunter Adult Acquired Communication

Evidence Based Practice Group

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Challenge to Extend our EBP Potential in 2013



- In 2013 clinical question was raised:
“Wanted to investigate what the current best practice is for assessment of dysarthria, including differential diagnosis processes”
- Group started to consider if we could challenge ourselves to consider the potential of applying EBP3 principles to this scenario



How we have engaged in E3BP



1. Pose a question: What the current best practice is for assessment of dysarthria, including differential diagnosis processes (2013)
2. Search of databases
3. Evaluation of external evidence via critical appraisal and development of CAT (2013)
4. Evaluate the internal client evidence
5. Survey of local SPs to evaluate internal clinical evidence (2013) & Identification of “gap” in external & internal evidence (2013)
6. Made the decision to develop an assessment tool/ therapeutic pathway guidelines (2014)
7. Application of quality improvement principles to evaluate the outcome of the decision (2014) which will add to our internal clinical evidence

Critical Appraisal Early 2013 (step 2 & 3)



- Search criteria:
 - Publications from 1994-2013
 - Databases searched: Medline, PubMed, Up To Date, McMasters Plus, Cochrane, SpeechBITE
 - Search terms: dysarthria, Ax, differential diagnosis, motor speech disorders & adult
- General paucity of literature re Ax of dysarthria
- 10 articles critically appraised
- Majority of studies were level III & IV evidence
 - case series, comparative study with & without concurrent controls, pseudo-randomised control trial.

CAT Results (Step 3)



- Participant numbers 4 - 110
- All studies aimed to improve Ax methods/tools. No article was able to confidently propose a new & robust assessment tool/s
- A range of tools were proposed to measure motor speech intelligibility. **However the auditory-perceptual rating systems did not demonstrate sufficient inter-rater reliability.**



Survey (Step 5)



- A state-wide survey of 67 SPs was conducted via survey monkey
- Most accessible dysarthria Ax: Frenchay Dysarthria Assessment (n= 51) & ASSIDS (n=17)
- Most commonly used: Informal unspecified screener (n=30) & Frenchay Dysarthria Assessment (n=28)
- 47.0% formal vs 77.3% informal assessment (choice of both)
- Frequency of differential diagnosis:
 - » Always: 17.7%
 - » Often: 34.3%
 - » Rarely: 44.8%
 - » Never: 3.0%



Comments

- “It is important for us as a profession to be differentially diagnosing our patients to ensure we are then managing them appropriately. I’d love an assessment tool that helps with the differential diagnosis.”
- “ I like dysarthria assessment to be detailed enough that it yields the most appropriate goals & translates to what is required in therapy.”

Where to? (Step 6)



- Address the GAP and make a clinical decision about what we need to do for our clinicians and clients:
- 3 fold process:
 1. We need an assessment tool that's flexible and easy to administer in a variety of service deliveries
 2. We need “something” to help with DD
 3. Can the tool help with therapy guidelines



Development of Tool – Integrate Findings



- Collated existing norms from textbooks & assessment tools
- Aim; to be quick to administer & adaptable to different clinical settings – meet the needs of SPs
- Contains key assessment tasks that have been found to yield better clinical information to assist with differential diagnosis processes – links back to known / current research to provide a evidence base for the tool



Development of DD Tool – Integrate Findings



- Differential diagnosis tool was also developed as an adjunct to the screening tool
 - An attempt was made to scaffold this tool in a way that leads the clinician through the differential diagnosis process in a structured manner. Eg:
 - Consider the links between dysarthria types & possible aetiologies
 - Ordered the assessment tasks in the sequential manner to assist with clinical decision making process

[Click here to launch N-DAT](#)



- Assessment circulation & feedback: HACI EBP Dysarthria Assessment was circulated among speech pathologists within the HNELHD
- Patient recordings: 5 recordings of patients were taken at RPC & TMH
- Inter-rater reliability: 11 SPs rated each of the 5 speech samples individually
- Analysis of data/ Conclusions/ future directions

SP Background



Years of experience:

- 5 SPS > 10 years
- 2 SPs > 5 years
- 3 SPS > 3 years
- 1 SP > 2 years

Type of caseload:

- 4 work in Inpatient Acute
- 4 work in Inpatient Rehabilitation
- 1 works in Outpatient Rehabilitation
- 2 work in Community
- 1 works in Brain Injury specific



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Survey Results



- A state-wide survey of 48 SPs was conducted via Survey Select- Launched 18/02/2015- Closed 30/06/2015
- If you have used this tool, did you find it useful for differential diagnosis? Yes (100%)
- Did you find this tool more useful than other tools you previously or currently use? Yes (95%)
- Comments on what clinicians like & dislike about the tool.
- What would you change about the assessment tool?

DATA: Inter-Rater Reliability Results



- Data analysed most simply using Fleiss' Kappa. Kappa (1 being perfect agreement): across 5 ratings was 0.11
- Detailed analysis of data: highest consensus for differential diagnosis was 5/11. Our lowest consensus was 3/11
- Mixed dysarthria: No less than 7/11 consensus on just one type of dysarthria



Other Findings



- Lower Consensus= higher level of perceived difficulty & higher intent to seek 2nd opinion
- SPs often seek 2nd opinion with differential diagnosis & this was higher when there was lower consensus on diagnosis
- Using this tool, SPs identified speech characteristics & accurately used these as a guide to differential diagnosis

Potential Conclusions



- In line with the literature, there was variability in SP differential diagnosis across 5 separate ratings
 - Unfamiliar with using comprehensive and structured Ax tool
 - Skill mix amongst clinicians
 - Fluctuating exposure to dysarthria Ax
 - Quality of recordings
 - Rating speech characteristics perceptually is **SUBJECTIVE**



Potential Conclusions



- There was an identified need for a dysarthria assessment to be developed (specified as per survey & literature search)
- A standardised assessment tool is warranted due to lack of inter-rater reliability among SPs when perceptually rating dysarthric speakers. Unsure of how using our tool may impact on this reliability versus another tool/ no tool.



Other Comments



- We haven't compared the inter-rater reliability of dysarthria assessment using our tool versus something else
- Anecdotally clinicians within this working party felt their confidence & skills at comprehensively differentially diagnosing and describe dysarthria has improved
- This assessment can be readministered & used as an outcome measure





- Unsurprising that inter judge reliability was low
- Normative data is a strong feature, that is excellent.
- Our scheme is better at identifying errors as a basis for treatment planning than for differential diagnosis. And that is not at all bad.
- Shorten the number of tasks



- Circulation of HACL Dysarthria assessment tool to wider SP population
- Use the tool to guide intervention & link it with a therapy clinical decision making tool
- Professional Development on perceptual ratings of dysarthric speakers

Comments or Questions???



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Group Members involved in QI project



THANK YOU!

Wendy Hackney, Eve O'Brien, Kerrie Strong, Kim Veitch, Amanda Masterson, Amanda Bailey, Claire Jeans, Nathan Haywood, Renae deVries, Kelly Langan, Alex Tait, Jane-Maree Perkins, Georgi Laney, Anna Reid.



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