Severe Aphasias and Apraxia: Similarities and Differences

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COI

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Here’s some guesses

- More referrals for swallowing than aphasia and apraxia of speech
  - True for how many of you in acute care?

- Feeling of greater confidence in making useful change in swallowing than in language and even praxis
  - True for how many of you regardless of where on the continuum?

- Feeling—especially in acute care—that not much treatment for aphasia and apraxia is possible
  - True for how many of you?

In anticipation

- Language and praxis disorders have slipped behind swallowing in general care
  - Of course not everywhere, or at least, for all clinicians

- General feeling that disorders from lower in nervous system are more amenable to tx than those higher in nervous system

- Traditional discussions of treatment over-emphasize tx programs
  - The steps and stimuli of typical program may be among the least important parts of treatment especially in acute and sub-acute

Over emphasis on treatment packages

- My experience: when someone asks what do I do with a person with Broca’s aphasia?
  - The expected answer is some version of:
    - CILT
    - VNeST
    - Intention therapy
  - Everyone good with the procedures for these three?

Message of this presentation

- You can treat aphasia and apraxia of speech in acute care if you have avoided or escaped the trap of thinking tx is solely some program
Brief definition of aphasia

- Aphasia is a language disorder (some would say a group of language disorders) characterized by impaired language comprehension-use
- Relative amount of impairment across comprehension-use can vary
- As can the amount of impairment across modalities of reading, writing, speaking, and listening

Definition of apraxia of speech

- "Apraxia of speech is a phonetic-motoric disorder of speech production. It is caused by inefficiencies in the translation of well-formed and filled phonological frames into previously learned kinematic information used for carrying out intended movements. These inefficiencies result in intra- and interarticulator temporal and spatial segmental and prosodic distortions" (p264)

Characteristics of AoS in absence of dysarthria or aphasia

- Distorted sound substitutions
- Distorted sound additions
- Increase in distortions or distorted substitutions as utterance length or articulatory complexity increases
- Same with increased speaking rate which may be very difficult for those with AoS
- AMRs (alternate motion rate as in puh puh puh) off target in place or manner
- Decreased words per breath group compared to maximum vowel prolongation

Clinical reality in acute care

- The two conditions, aphasia and AoS, often co-occur
  - Either because of size of lesion
  - Or diachisis or other generalized effects in acute brain damage
- Clinical resource restraints usually prohibit the extensive observation that would help distinguish relative amounts
- A best guess, and sometimes even total ignorance, are often the best that one can do

Little debate about its reality

- Types are more problematic, e.g. anomic, transcortical motor, Broca, Wernicke, Conduction, etc
- I believe in types to the degree they prompt me to think somewhat differently about elements of treatment
  - This notion will be developed throughout the day
  - Involves GO therapy for more non-fluent problems and STOP therapy for more fluent problems

Should be

- Little discussion of this condition’s reality
  - The problems arise in identifying it (or misidentifying it)
The implications of this difficulty

- Prognosis is a guess or impossible

- HOWEVER, early treatment (management) is hardly compromised

Want to begin section with a quote

- "...healing is replaced with treating, caring is supplanted by managing, and the art of listening is taken over by technological procedures..."
  - The Lost Art of Healing, Bernard Lown, M.D. quoted in NYT, 2-25-18

- Changes occurred with the beginning dominance of medicine by the biomedical sciences

- And accelerated with emphasis on evidence based practice and increased productivity demands

Quickly add

- I absolutely support evidence based medicine

- I embrace sophisticated evaluation and treatment

- But I see both as additions to my clinical expertise and time spent with patients and families

- NOT substitutions for them

Lets move on to a expanded definition of treatment that melds art and science and makes it relatively for even the busiest clinician in acute care to say, "I don't need merely To diagnose and adios"

Expanding definition

- Requires we know or at least hypothesize what active ingredients are present in each of our sessions—even the first bedside visit
  - Active ingredients: those that influence behavior

- These active ingredients will differ somewhat during the course of treatment, of course

- And some individuals may react idiosyncratically

Active ingredients

- These are the components that are responsible for someone’s change both in nervous system function and in behavior
Here is a good article

- If interested beyond this presentation, begin with
  - Identify three components needing specification in any treatment decision
    - Treatment target(s)
      - Treatment ingredients, usually referred to as method but includes much more
    - Mechanism of action

However, usual targets in acute care are different

- Targets in acute care are more likely emotions such as anxiety, cognition such as confusion and knowledge, or its absence
- Early recovery especially is more about these variables than about naming, comprehension or speech sound integrity
- If intact or improved, they are the critical basis of subsequent language or speech focused treatment
- Improvement in them requires changes in the nervous system as surely as does teaching a word list

Next, Ingredients

- Active: those activities that cause the desired change (responsible for achieving the goal)
- Essential ingredients: active ingredients that differentiate one treatment approach from another
  - Active speaking in CILT vs multi-modality training
- Inactive ingredients: things we do that are part of clinical interaction but don’t influence goal achievement
  - Hi, How are you? (is this really an inactive ingredient?)

Next, mechanisms of action

- First, placebo effect
- Second, Increased attention and effort behaviorally AND generalized increase in neural activation neurophysiologically
- Third, permanent and focal change in neural activity in one or more areas of nervous system

Active ingredients and mechanism of response

- First is the placebo effect
  - Which is physiologic—the brain changes which is the only way for behavior to change
  - Accounts for up to 20% of overall change
  - Clinicians make it happen and they should take pride in doing this well
History of thinking about placebo

- Ignored or wished away early on
- Placebo was something to be controlled
- Now it’s something to be understood

One way to think about it

- Placebo effect is in part an information effect
  - People respond positively (negative response also possible including the appearance of unwanted side effects) to information provided by a clinician

Another way to think about it

- Placebo may be in part an expectation effect

Another way

- Perhaps different from the previous
- May be a belief effect

Belief?

- “The physician’s belief in the treatment and the patient’s faith in the physician exert a mutually reinforcing effect; the result is a powerful remedy that is almost guaranteed to produce an improvement and sometimes a cure”
  - Skrabauck and McCormick. *Follies and Fallacies in Medicine*

Clinician belief

- As an active treatment ingredient
  - May explain the sometimes wildly different views of practitioners about methods such as oral motor exercises and neuromuscular electrical stimulation (NMES)
  - Probably what a clinician does in a protocol in addition to following some steps influences how a client performs
Belief
- You appear confident that your interaction with patient—even if limited by condition—can be profitable
- And equally or more important is belief you communicate to staff and family members

Can influence expectation potentially of both patient and carers with information
- I have seen this problem before
- We have treatments for it
- You family can be a huge influence for good (or ill)
- Most make at least some progress and if can get and stay well worse days may soon be behind us

Information effect can be huge
- Begins with knowledge from your own education and experience you bring to the bedside
- Supplemented with what you learn from chart review, assuming chart is accurate
- And about speech and language one always has to be cautious
- Further bolstered by history from pt or more likely from carer
- And by evaluation at bedside, which can and should be as simple as observation

Language and speech exquisite cells are more frequent in left that right hemisphere even in left handers
- Left handers more likely than right to have bilateral speech—language representation
- Some may be right dominant
- As are the ambidextrous
- Crossed aphasia in which a right hander is right hemisphere dominant for language is rare
- Probably even rarer in AoS

Any condition that has focal effects on language tissues can cause aphasia and on speech control tissues can cause AoS
Stroke is among the most likely
- World-wide prevalence of stroke is 46–73 per 1000 persons
- Approximately 30% of all comers are likely to have aphasia—Fewer with AoS
- Aphasia increases LOS and therefore cost—not known in AoS
- Persons with aphasia more likely than those without to be discharged to a rehabilitation center—unknown in AoS
- The brain is plastic and cells are looking for meaningful work

Severity of initial language deficit strong predictor of recovery especially at 2–4 weeks
- Thus in acute care need to be very careful but need not say we don’t know
- We will know more by two to four weeks post
- In AoS may be somewhat different
- Probably most important is the pace of recovery in the first few days
- Indeed, if not recovering probably not apraxia
Other prediction data

  - 40% of men and women with aphasia at 7 days are still aphasic at 6 months
  - 60% still aphasic at 6 months if aphasic at 3 weeks
- Data less numerous in AoS

What else

- Large lesions increase likelihood for persisting aphasia and AoS
- Does not mean they are not treatable
- Indeed especially if right hemisphere is preserved improvement is especially likely
Other data contributing to our prognostication

- Some preservation of temporal lobe is positive
- Lesions extending from cortex into underlying white matter is negative
- Preservation of right hemisphere is positive
- Single lesion better prognosis than multiple especially if in both hemispheres

Useful references


Dementia

- Dementia darkens prognosis
- Easy to mistake the generalized effects of acute stroke for dementia early
  - Thus an hypothesis about whether generalized deficit is temporary or permanent can be helpful

How do create hypothesis?

- Scan data if available
- History of mentation prior to stroke
- Bedside evaluation
  - Initial delirium not likely to persist

Other prognosis variables

- General health and pain state
- Sleep
- Nutrition
- Activity
- Depression
- Presence/absence of seizures

Information effect

- SLPs have bountiful information
- We don’t need to say when asked by the family about the patient’s future: “Oh we don’t know.”
- We can HUMBLY say: If your loved one gets or stays well here are some positive indicators
  - The biggest: EXPERIENCE-DEPENDENT PLASTICITY
  - But before turning to that
In addition to placebo

- Increased effort (behaviorally) and widely distributed neural activation (physiologically)
  - Also clinician responsibility
  - Like placebo will disappear if not reenforced
  - Like placebo can be foundation for more permanent rehabilitative changes
  - Like placebo can often be begun in in-patient setting
    - With rehabilitative effects awaiting out-patient or other rehabilitation

How to increase effort

- With good bedside manner
- By emphasizing natural—not drill or repetition based—communication
- By discussing possible futures
- By emphasizing that brain is plastic
- By emphasizing that improvement is not—at this moment, at least—dependent on “therapy”

Treatment has begun

- Have not said a word about a treatment package such as VNeST
- But have begun changing person at least potentially
- Understanding this means reminding one’s self of treatment goals

The usual goal statements

- Improve one or more dimensions of language such as verbal expression or auditory comprehension
- Or speech sound and sequence production
- These everybody learns and learns to value
- But should not be the only goal(s) considered

Equally or more important

- Especially in acute stage
  - Increase hope and confidence in ability to communicate
  - Increase family’s amount and quality of involvement
  - Influence communication–related quality of life
  - Influence sense of autonomy
  - Stimulate the brain’s speech–language exquisite cells

How to achieve

- Build on the information and other effects
- By emphasizing that the brain is plastic
- And what all of us do in the acute stage can cause brain to improve or deteriorate
One of the negatives

- Neurotoxic effects on brain
- Drill and repetition may cause further cell damage in acute stage
- On the other hand, environmental enrichment can begin a series of positive brain changes
  - And this can be general—need not be communication specific

Environmental enrichment

- Periods of silence and calm
  - Judge Judy blaring on TV is unlikely to help
- Non-demanding, human communication about things that matter in short episodes
- Touch
- Familiar pictures and etc
  - Abandoning the notion “I must do something” by which most mean “Shall I have him imitate me?” or equivalent is critical

And when time is right

- These general stimulating activities can be joined by more focal ones
- Delaying the focal is not a waste of time
  - Indeed some kind of repetitive activity may not only not help it may hurt

But what about swallowing?

- What about it?
- The chart review that helps you think about the swallow simultaneously helps you think about communication
- Interacting with person about swallow simultaneously informs about speech, language and cognition

I will ask you to remember

- Influencing physical health in the absence of attempts to influence mental health is inadequate care

A powerful influence on both

- Having a plan
More on plan

- Or perhaps it ought better to be called prediction with a formula for what can happen if patient, family, facility and healthcare team want it to
- Or can be helped to want it to

Aphasia and AoS in acute care

- Much of the most useful stuff that happens for people with aphasia or AoS has nothing to do with treatment as narrowly defined
- Placebo, neural activation, information, hope and an eventual road forward are overlapping, interacting neural, emotional and neurologic outcomes of a clinician's knowing what she/he is doing

One more time

- Doing, in acute care especially, has almost nothing to do with some canned program, workbook or procedure

Thanks