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Principles of rehabilitation in dysphasia

by

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Introductory remarks

It has been estimated that some 23,000 patients in the UK suffer persistent language problems following head injury, cerebro-vascular or other organic disorders. [Enderby & Davies, 1989] A great deal of skilled manpower - usually woman-power - is spent on therapy for these people, yet we have only the most rudimentary understanding of the effects of different types of treatment on different types of dysphasic patient. This partly due to a general lack of research, but more importantly due to the fact that most of the research that has been carried out does not even attempt to assess the differential effectiveness of treatment types for different types of language disorder. [see Howard, 1986]

Given recent advances in neuropsychological assessment and the development of quite detailed models of language-processing to which assessment outcomes can be related, it is usually possible to identify with some precision in individual patients, those processes that have been spared that those which have not. [Shallice, 1988] Although there is no simple rule for matching a deficit to a treatment regime, our research on a small number of specific disorders indicates that the choice can be made in a principled way. The important point is that effectiveness must be monitored.

What is needed is to create a research culture in language therapy, so that those involved in patient management look systematically at the relationship between the nature of disorder and the effectiveness of treatment regimes.

Our approach is based on three simple, and we hope, uncontroversial, assumptions:

- (1) Patients are not homogeneous;
 - (2) Therapy is not homogeneous;
 - (3) Only some treatments will be appropriate for a patient of a particular type.
- Taken together, these assumptions have important implications for how therapy should proceed.

1. THEORETICAL PRINCIPLES

Patients typically suffer multiple language impairments.

1.1 Identify the exact nature of the impairments

Traditional classifications of aphasia (Broca's, Wernicke's etc) may be adequate for localisation but are not sufficient for designing therapy regimes, because patients with the same syndrome label may have different processing impairments - eg. Broca's aphasia with and without comprehension disorders [Howard, 1985]; different types of comprehension disorder within Wernicke's aphasia [Franklin 1989]; different types of

output problem within "agrammatism" [Berndt, 1987; Saffran et al., 1980]

Using appropriate assessment techniques, the stage(s) or component process(es) underlying a presenting symptom can be identified. For example, failure to name a picture may be due to a deficit at one or more of the several stages in getting from recognition of the pictured object to the retrieval of its name [Butterworth, 1989]. If the deficit lies solely in retrieving the phonological form of the name, tests of, say, picture-word matching may be normal, but other tasks requiring retrieval of the phonological form, like repetition, will also be impaired. On the other hand, the deficit may lie at an earlier stage of processing involving the semantic specification of the name, which may show up in comprehension as well as production of names. [Butterworth et al., 1984]

This approach depends on having a model that decomposes a task into its information-processing components and shows those that are shared among different tasks.

Problem: appropriate assessment batteries are not standardly used, indeed not available, but need to be assembled for individual patients.

1.2 Match treatment to impairment

a. There are three main types of treatment:

- * relearning of information or procedures that have been lost
requires identifying what has been lost
- * facilitation of access to information intact but inaccessible
[Schuell et al., 1964]
requires distinguishing lost from inaccessible information
- * reconstitution of function, that is, finding new ways to do a task
[Luria, 1963]
- both internal and external methods can be used
requires identifying what has been spared
[Howard & Hatfield, 1987]

b. Treatments can be made specific to a domain:

for example, to a processes or task, like naming or single word comprehension, or to type of linguistic material, like nouns or verbs.

Problem: Knowing the deficit doesn't automatically prescribe a type of therapy, but may indicative or at least worthy of test.

Where a word form deficit is diagnosed, a cue to the phonological form (like the first sound) may help with retrieval, and phonemic cueing may turn out to be an important component in a treatment regime. Where knowledge of the first letter of word is known, but the word itself is inaccessible, a computer-generated prompt can be deployed as a prosthetic device [Bruce & Howard, 1987]

1.3 Evaluate effectiveness of the treatment

A heterogeneous experimental group compared with a heterogeneous control group combined with unspecified types of treatment make a study uninterpretable.

Problem: It is hard to assemble homogeneous groups. With respect to which criteria are

patients to be regarded as the same?

Solution: Use the within single case approach. This allows you to make use of the fact that patients have multiple impairments, so you can partition the effectiveness of a particular treatment for a specific deficit from any general effects a treatment regime might produce.

A study must distinguish effects of treatment from those of spontaneous recovery.

Problem 1: There are few good longitudinal studies of the detailed course of recovery. [eg Panzeri et al., 1987]

Problem 2: Recovery varies from case to case, and is unpredictable.

Solution: Using a specific treatment for a specific deficit allows the separation of general recovery from effects of treatment, and automatically takes into account individual differences.

In brief: Use an "effectiveness matrix" which assesses particular treatment regimes for particular deficits; use a "cross-over" design to partition specific effects from general effects.

1.4 Revise treatment schedule

If treatment X is not working, this may mean that problem irremediable, that the diagnosis was incorrect or the treatment was wrong. Since we don't know much about which treatment will be effective for which problem, consider this first.

2. PRACTICAL PRINCIPLES OF PATIENT MANAGEMENT

2.1 Treatment regimes

People have been quick to dismiss effects of language therapy, but one must give treatment a real chance to work if you are serious about rehabilitation.

If you are to treat,

treat early

treat intensively

treat for long enough [Howard & Hatfield, 1987; Howard et al, 1985a]

2.2 Treating all the issues

Aphasic patient don't just have language problems. Additional problems, like motoric difficulties, will be associated with their language impairment; others will a direct consequence of it, like inability to cope with the everyday world. Rehabilitation implies making the patient as effective as possible in achieving their normal goals.

Treatment should not be aimed only, or sometimes even at all at alleviating language impairment. Patients can be helped to use language they've got more effectively. Prosthetic aids can be developed [Bruce and Howard,]. Patients can be helped to adjust to living with language impairment. All these are legitimate aims of rehabilitation, though not all will be aimed at changing scores on language assessment. These issues can't be ignored.

Treat the language impairment
Improve the use of residual language
Improve the context in which the patient operates
Improve morale
Counsel for adjustment
Encourage the development of compensatory strategies, which may involve prosthetic aids.

It is possible, but unproven, that attempting rehabilitation in all of these areas will produce synergy.

2.3 Treating in a team

Rehabilitation should be comprehensive. In addition to medical management and speech therapy, physical difficulties and social problems like transport and housing, adjustment counselling and the development of prosthetics will require specialist help.

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