



Verbal fluency deficits in Parkinson's disease: individual differences in underlying cognitive mechanisms

J.M. Gurd*

*Neuropsychology Unit, University Department of Clinical Neurology, The Radcliffe Infirmary Trust,
Woodstock Road, Oxford OX2 6HE, UK*

Abstract

Although it is now well established that patients with idiopathic Parkinson's disease (PD) frequently have verbal fluency deficits [1,2], the issue of individual differences has yet to be addressed experimentally. Evidence presented here demonstrates that the underlying information processing causes of PD verbal fluency deficits may differ from person to person. These studies have been carried out on non-demented PD patients. The theoretical issues of case-series research and population homogeneity in cognitive neuropsychology are also discussed. © 2000 Elsevier Science Ltd. All rights reserved.

Keywords: Parkinson's disease; Neuropsychology; Anomia; Verbal fluency; Neurodegenerative disease; Neurolinguistics

1. Introduction

A considerable literature on verbal fluency (v.f.) [3] impairments in Parkinson's disease patients has recently emerged [2,4–9]. Its roots lie in: (1) **cognitive psychology** investigations of the structure of natural semantic categories [10–14]; (2) **cognitive neuropsychology** research on word-finding under non-cued conditions [15]; and (3) **behavioral neurology** studies of continuous, speeded, internally

* Tel.: +44-1865-224-702; fax: +44-1865-556-164.

E-mail address: gurd@ermine.ox.ac.uk (J.M. Gurd).

generated performance associated with basal ganglia-thalamo-cortical loop functions [16–18].

Controversies such as the *clinical* interpretations of v.f. deficits as a partial diagnostic for dementia [19], are theoretically distinct from these *experimental* issues that concern the functional architecture of v.f. task performance addressed here.

Evidence from previous studies in our unit [1,2,30,21] has derived primarily from group studies. We have reported that many non-demented patients with Parkinson's disease (PD) have v.f. deficits [2]. Furthermore, their v.f. performance correlated with confrontation picture-naming accuracy on the Boston Naming Test [2] and with slowed word-search rate on a Neisser-paradigm [20]. The latter experiment focused on the role of hierarchical semantic structure (superordinate, basic and subordinate levels) in natural categories, and their effect as semantic contexts on lexical-semantic retrieval [22–24]. A group of PDs were significantly impaired compared to matched controls, on a 'pure' measure of word search in which motor factors such as visual scanning and response times had been individually subtracted out. As the semantic proximity of the target to the foils (non-target word items in the list) increased, response times increased. For example, recognizing 'any dog' (basic level items), amongst a list of 'animals' (superordinate items), takes longer than the same target recognition from among a list of semantically unrelated items [21]. The group effect was only significant when such motor factors had been partialled out on an individual-by-individual basis.

It is important to note that in any cognitive experiment on PD patients, motor factors will have a heterogeneous effect: motor deficits will vary in pattern, type, severity and fluctuation over time, as may cognitive factors [25]. The case-series or individual case study approach, though highly time consuming, will provide more accurate results when subjects with deficits that vary over time are drawn from such a heterogeneous population [26].

The current study is therefore motivated by the above factors. This further examination of the nature of PD word-finding deficits studied the individual patterns of performance of a series of PD patients, all of whom performed the same three different measures of word-finding: the tasks varied along the axes of 'word-search', versus articulatory load. Word search tasks were employed that maximized lexical-semantic retrieval load while minimizing articulatory load. Conversely, automatic speech (a.s.) tasks minimized semantic search while maximizing rapid, ongoing articulation.

Given that verbal v.f. requires both word search and rapid articulatory production, these search and a.s. tasks were deployed to assess the information processing locus of breakdown in PD v.f. performance. In explaining why some non-demented PDs have v.f. deficits, it is crucial to distinguish experimentally between articulatory versus semantic deficits. There may be subcategories of PDs according to these criteria, and this may affect the interpretation of correlations between word search and v.f. [20,21]. The current study investigates such

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات