Body Language in Parkinson's Disease

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Introduction

Parkinson's disease is predominantly a disorder of motor function, the cardinal features being hypokinesia, rigidity and tremor. Encompassed in the term hypokinesia, or akinesia, are the phenomena of delayed initiation, slowness (bradykinesia), reduction in amplitude and fatigability of voluntary movement; impairment of the execution of simultaneous or sequential actions; and defective kinetic automatisms such as the loss of arm swing when walking (Delwaide and Gonce, 1988; Lees, 1990). Any of these hypokinetic features may develop independently and any individual patient may experience only one of them. Rigidity describes an increase in resting muscle tone and contributes to the postural abnormalities associated with the disease. The tremor most commonly affects the hands but may be more widely distributed although it rarely involves the head (Selby, 1990). All of these motor system dysfunctions are sensitive to changes in emotional state (Lees, 1990) and the contributions of each to an individual's disability at a specific point in time can be impossible to disentangle.

Such wide ranging interference with normal motor function inevitably affects the expressive behaviour of the patient. The terms expressive behaviour, non-verbal communication and body language will be used almost synonymously. A discussion of the controversy over the conceptual basis of what constitutes non-verbal behaviour can be found elsewhere (Bull, 1987). Within the non-verbal system is included facial expression, gaze, the use of gesture, postures, spatial behaviour, appearance and non-verbal vocalizations (Argyle, 1988). It can be argued that it is inappropriate to isolate one of these components from the others as body language consists of a complex and ill-understood interplay between them. Similarly our state of knowledge is such that we cannot confidently attribute a specific alteration in expressive behaviour to a particular motor phenomenon of Parkinson's disease as, for instance, both hypokinesia and rigidity may be jointly responsible. Having stated these caveats, what effects may the characteristic clinical features of Parkinson's disease have on body language?

Delay in initiation of movement

Hesitancy in initiating movement may be manifest in a delay in shaking a proffered hand, slowness in reciprocating a wave or tardiness in rising from

a chair to greet someone. The affected individual has the will and determination to perform the act but is unable to do so. The observer may misinterpret the delay in initiation as a lack of initiative. Magoun (1950) recognized this: "much of their immobility appears to be lack of 'will' to move and they seem afflicted not so much with a paralysis of movement as with a paralysis of volition". The same phenomenon affects verbal communication as hesitancy in starting to speak (Mawdsley, 1975). Thus the very first encounter with a person with Parkinson's disease may involve an apparent unwillingness or caution on their part to socially interact.

Reduced speed of movement (bradykinesia)

Slowness in voluntary and spontaneous movements accounts for the classical description of the "sloth-like demeanour" of Parkinson's disease. Thus body, limb and facial movements may all be executed sluggishly and, even when the patient is trying desperately to walk, write or speak quickly, these actions may appear languid or restrained. Motor retardation is a diagnostic feature of depression (DSM III-R, 1987) which is a common complication of Parkinson's disease (Gotham *et al.*, 1986). Care must therefore be taken to apply other criteria than the physical phenomena to ascertain whether depression is present in these patients. Observers may also misinterpret the bradykinetic features as indicative of undue deliberation, tentativeness, reluctance or even laziness.

Decreased amplitude of movement

Either alone or in association with slowness, reduced amplitude of movement is perhaps most evident in its effect upon gestures. Commonly used gestures such as waving to or beckoning someone tend to lack generosity or expansiveness and so may appear to have been done grudgingly or insincerely. Many gestures are used in association with speech to illustrate, emphasize or lend dramatic impact to what is being said (Kendon, 1983). Examples include head nodding, posture shifts, thrusting of the chin and arm and hand motions accompanying speech. In Parkinson's disease such activities may be dampened down, reduced in frequency or even absent (Pitcairn *et al.*, 1990). Whether many of these movements represent kinetic automatisms is unclear but it seems reasonable to speculate that some of them are. These gestural accompaniments of speech, sometimes referred to as co-verbal behaviour (Linebaugh, 1984) have a parallel in the non-verbal vocalizations which constitute part of paralanguage (Knapp, 1978). Thus utterances such as "uh-huh", "um", "ah", etc., so-called vocal segregates, may be reduced or absent in Parkinsonian speech. The lack of gestures and vocal segregates during conversation may be construed by the listener as due to disinterest, insincerity or even deceit (Eckman, 1986).

Impaired execution of movements

Difficulty in sequencing or carrying out two separate movements simultaneously are recognized problems in Parkinson's disease and current opinion is that, while the planning of complex tasks is not fundamentally impaired, there is a major defect in the automatic execution of more complex motor plans (Delwaide and Gonce, 1988). Non-verbal expressive movements are usually not consciously planned but occur spontaneously. However, it is clear that we supplement our speech with conscious illustrative gestures at times. The ability of a person with Parkinson's disease to make pantomime movements is impaired when these are attempted in response to a command and one suspects that those attempted of his own volition would be also. Thus while most of us can communicate our needs or intentions to a foreigner when neither of us has a shared language by the performance of charade-like actions, the person with Parkinson's disease is likely to encounter difficulties trying to do so.

Facial expression and gaze

Facial expression is of major importance in expressing emotions, communicating interpersonal attitudes and complementing the spoken message (Argyle, 1988). In Parkinson's disease the patient is able to perform voluntary facial movement, albeit sometimes hesitantly and slowly, but the spontaneous expressive gestures are lost (Rinn, 1984). In the early stages it may only be some minor nuances of expression that are lost but poverty of blinking is common and smiles tend to wax and wane slowly. The reduction in blink frequency combined with wider than average palpebral fissures and a reduction in voluntary searching eye movements results in a "staring" appearance of the eyes (Selby, 1990). The term "reptilian stare" was used by early authors to describe this unblinking, rather fixed gaze (Wilson, 1940). Smiles are altered in character as well as speed. The act of smiling may arise from various feelings such as happiness, smugness, fear, contempt, etc., or may be made while an individual is sad or insincere. The type of smile reflects its origin (Ekman and Friesen, 1983; Stettner *et al.*, 1986). Pitcairn *et al.* (1990) recorded a high frequency of posed or "phony" smiles compared to happy smiles in subjects with Parkinson's disease. The major difference between these two types of smile is that in a happy smile there are associated movements in the upper part of the face which are not found in a phony smile. Thus the cheeks tend not to be raised, crows feet do not appear and the lower eyelids do not rise and bulge in the latter. It is likely that these movements represent a kinetic automatism which is impaired or lost in Parkinson's disease. The fact that the smile, which may be read by the observer as phony, evolves slowly associated with a staring appearance can result in a striking and sometimes disconcerting leer. The actual frequency of smiling is also reduced in the condition (Katsikitis and Pilowsky, 1988; Pitcairn *et al.*, 1990). As the disease progresses the immobile "mask-like" countenance characteristic of the disease becomes established.

The reduction of facial expression has been described in terms of emotional, personality or intellectual attributes for many years. Thus in the last century Charcot noted "a remarkable fixity of look, and the features present a permanent expression of mournfulness, sometimes a stolidness or stupidity" while Gowers remarked on their "anxious and fixed" faces (Tyler, 1987). Monrad-Krohn (1957) commented that their appearance may be thought indicative of mental dullness, hostility or emotional coldness. When health professionals viewed silent videorecordings of Parkinson's disease patients and controls with ischaemic heart disease first impressions of anxiety, hostility, suspicion, depression, boredom and reduced intelligence were reported in the Parkinson group (Pentland *et al.*, 1987, 1988). These impressions are likely to be reinforced by the characteristic changes in speech in the disease as, when psychology students listened to the voice recordings of the same patient groups without visual images, they gave virtually identical reports of their impressions (Pitcairn *et al.*, 1990b).

This reduction in facial expression is not exclusive to Parkinson's disease. It has also been noted in other forms of brain damage (Buck and Duffy, 1980), is a typical feature of depression and has been suggested as a major component of the diagnostic criteria for schizophrenia (Andreasen, 1989).

Posture

A degree of forward flexion of the trunk is usual in Parkinson's disease and, as the condition progresses, the elbows and knees may be slightly bent giving an overall stooped and flexed posture. In advanced cases the body is almost curled up. Such an appearance is commonly associated with senility and infirmity but is also typical of "submissive behaviour". "The long-term loser, the social failure and the depressed subordinate walk with a permanent stoop, shoulders rounded and neck hunched forward, their posture a non-stop stoop" (Morris, 1977). To suggest that patients with Parkinson's disease are perceived in such extreme terms is excessive perhaps but such a posture combined with a slow, and sometimes shuffling, gait is the opposite of self-assertive behaviour. This would seem particularly relevant to the individual who is still in employment and has to argue his case with colleagues or negotiate with others.

Tremor and Dyskinesias

The tremor of Parkinson's disease is typically maximal at rest and as it is slow and coarse it is usually readily noted by others. It is typically aggravated quite markedly by anxiety and stress. Tremulousness in normal subjects is frequently associated with anxiety or fear and it may be that the presence of a tremor in association with the other features described above makes observers attribute anxiety or nervousness erroneously to patients in some instances. This would represent another example of mis-reading the body language of such individuals.

Other abnormal excessive movements also occur in untreated but especially in treated cases of the disease. Thus the general motor restlessness, fidgetiness and inability to sit still that constitutes akathisia has been noted for years in untreated cases. Treatment, particularly with levodopa containing drugs, frequently causes orolingual or orofacial dyskinesias, choreoathetoid movements or dystonias. Such involuntary and aberrant "gestures" may be considered indicative of psychiatric disorder especially to the lay person unacquainted with the individual patient who meets him in a public place. Parkinson's disease patients and their relatives may describe poignantly the adverse or avoidance reactions of others to such behaviour.

Depression, Dementia and Pre-morbid Personality

Depression undoubtedly occurs more frequently in Parkinson's disease than in the general population (Gotham *et al.*, 1986) and the suppression of body language associated with this condition may well aggravate the psychomotor retardation occurring in Parkinson's disease. Subtle differences such as the tendency to adopt a downward gaze pattern in depression (Waxer, 1974) may help differentiate the two but it is essential that a proper psychiatric evaluation is made to diagnose depression in these patients. Much the same situation applies to dementia which also occurs at increased frequency in Parkinson's disease (Lees and Smith, 1983).

The possibility of a pre-morbid personality predisposing individuals to Parkinson's disease is a fascinating suggestion of long-standing which has recently been reviewed by Lees (1989). Such attributes as suspiciousness, edginess, taciturnity, melancholia, inflexibility and obsessiveness have been given. As Parkinson's disease takes years of dopamine depletion before the clinical diagnosis becomes apparent it is possible that subtle changes in expressive behaviour pre-dating the onset of the more recognizable symptoms of the disease contribute to these findings.

Facial Efference

There has, in recent years, been a renewed interest in the hypothesis that facial expression has a feedback effect on the experience of emotions (Adelmann and Zajonc, 1989; Izard, 1990). It has been suggested that the term facial expression be avoided as it implies that emotional facial action manifests the internal state when the process may be acting in the other direction, hence the alternative term of facial efference (Adelmann and Zajonc, 1989). Further study of this phenomenon in conditions like Parkinson's disease would be of interest as it may be that some of the emotional reactions experienced by the patient may be the result of their facial immobility.

Conclusion

Impaired body language is all too apparent to clinicians and others in frequent contact with people with Parkinson's disease yet there is a dearth of scientific study into this aspect of the phenomenology of the condition. It is a rich seam for future research as study of pathological states has frequently served as a basis for increased understanding of physiological processes. Assumption about personality, mood state and intellectual capacity of individuals with impaired expressive behaviour due to neurological disability may well be made on a false premise. The possibility that impaired expressive ability may have a feedback effect on the individual's emotional status also needs to be explored. Increased understanding of the effects of the mute state in nonverbal terms afflicting some Parkinson's disease patients should hopefully lead to improved rehabilitation strategies in terms of what is broadly labelled social skills training.

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