

## A Rating Scale for Drug-Induced Akathisia

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A rating scale for drug-induced akathisia has been derived that incorporates diagnostic criteria for pseudoakathisia, and mild, moderate, and severe akathisia. It comprises items for rating the observable, restless movements which characterise the condition, the subjective awareness of restlessness, and any distress associated with the akathisia. In addition, there is an item for rating global severity. A standard examination procedure is recommended. The inter-rater reliability for the scale items (Cohen's  $\kappa$ ) ranged from 0.738 to 0.955. Akathisia was found in eight of 42 schizophrenic in-patients, and nine had pseudoakathisia, where the typical sense of inner restlessness was not reported.

Akathisia is probably the commonest and one of the more distressing of the movement disorders associated with antipsychotic drugs (Lancet, 1986; Barnes, 1987). Following the original descriptions of drug-induced akathisia (Sigwald *et al*, 1947; Steck, 1954), there was little further work on the phenomenology of akathisia, and no consistent or clear operational definition emerged. The diagnosis of akathisia tended to rest upon systematic questioning regarding a patient's inner restlessness. However, reliance on a patient's subjective report alone does not allow for reliable diagnosis (Van Putten & Marder, 1986, 1987).

The lack of delineation of the associated motor behaviour created difficulty in separating akathisia from other movement disorders seen in drug-treated schizophrenic patients. These include Parkinsonian tremor, dystonia, tardive dyskinesia, tics, stereotypies and mannerisms. The distinction between tardive dyskinesia and akathisia is complicated by the common coexistence of the two conditions (Barnes *et al*, 1983). Descriptions of tardive dyskinesia have consistently mentioned motor restlessness, and subjective distress has been found to correlate rather better with trunk and limb movements than with orofacial movement (Rosen *et al*, 1982).

The lack of diagnostic criteria may partly account for the wide range of prevalence figures reported in the literature (Marsden *et al*, 1985): although a figure of around 20% is commonly accepted (Ayd, 1961; Braude *et al*, 1983), Freyhan (1958), for example, found a prevalence of only 12.5%, while Van Putten (1975) recorded a figure of 45%. Furthermore, in a sample of drug-free schizophrenic patients who received haloperidol (10 mg) at bedtime for seven days, Van Putten *et al* (1984) found that 75% experienced akathisia.

In addition, the absence of a precise clinical definition might be partly responsible for the failure of clinicians to recognise the condition consistently

(Weiden *et al*, 1987). It may also contribute to the common misinterpretation of motor phenomena of akathisia as the signs and symptoms of psychiatric illness (Van Putten, 1975; Braude *et al*, 1983). If akathisia is misdiagnosed as an exacerbation of agitation or psychotic excitement, this error may prompt an increase in antipsychotic drug dose, which would almost certainly aggravate the problem.

### Validity of the scale

The validity of the rating scale (see Appendix) derives from its basis in signs and symptoms found to be characteristic of the condition in our previous studies of both acute psychiatric admissions receiving antipsychotic medication (Braude *et al*, 1983) and schizophrenic out-patients on maintenance medication (Barnes & Braude, 1985).

### Subjective item

These studies found that against the background of a relatively non-specific sense of inner restlessness or mental unease, sufferers were often particularly aware of tension and discomfort in their limbs, sometimes with paraesthesia and unpleasant pulling or drawing sensations in their legs. These complaints are akin to symptoms found in the 'restless legs', or Ekblom's, syndrome (Blom & Ekblom, 1961; Lancet, 1986).

In addition, the patients with akathisia would typically experience a desire to move, an awareness that they were unable to keep their legs still, or a compulsion to move which was often particularly referable to the legs. Many patients complained that the condition was least tolerable when they were required to stand still, for example when queuing for meals or medication on the ward, waiting at the supermarket checkout, or standing in the kitchen

while cooking. These symptoms constitute the subjective diagnostic criteria for akathisia included in the item 'awareness of restlessness' of the scale.

The inner restlessness and emotional unease experienced by patients with akathisia is often distressing for patients, and may lead them to refuse further medication. The importance of akathisia as a cause of poor compliance with antipsychotic drugs has been emphasised by Van Putten (1974). The overwhelming and intense nature of the subjective experience in severe cases is illustrated by reports where akathisia has been thought to have contributed to violent, aggressive behaviour (Kekich, 1978; Kumar, 1979; Schulte, 1985) or impulsive suicidal behaviour (Shear *et al*, 1983; Schulte, 1985; Drake & Erlich, 1985; Shaw *et al*, 1986). An item for distress related to restlessness was included in the scale. Any distress associated with akathisia can usually be elicited without difficulty, and is commonly complained of spontaneously.

#### Objective criterion

The study by Braude *et al* (1983) and a similar investigation by Gibb & Lees (1986) also found that particular patterns of restless leg movements were observed in association with the subjective experience of akathisia. The most characteristic signs that emerged were rocking from foot to foot or walking on the spot when standing. Van Putten & Marder (1987) agree that these foot movements are easily recognisable, and are present in all patients with moderate or severe akathisia. Braude *et al* (1983) observed other patterns of restless movement in seated patients, which accompanied the typical subjective experience of akathisia. They described these as shuffling or tramping of the legs. With severe akathisia, patients appeared to be unable to stand without walking or pacing. Gibb & Lees (1986) generally confirmed these findings, and suggested further that fast walking and swinging of one leg when sitting should also be considered as part of the akathisia syndrome.

These motor phenomena were considered to be observable diagnostic criteria for akathisia, and are included in the 'objective' item of the rating scale.

#### Global item

The rating of 'absent' refers to the failure of the rater to elicit any subjective awareness or complaint of restlessness. However, in the absence of any report of a sense of inner restlessness or a compulsion to move, some patients may manifest obvious, complex, repetitive movements resembling those seen in

akathisia (Barnes & Braude, 1985). A common feature is rocking from foot to foot while standing. These movements seem to be of a volitional rather than choreic nature, and appear to represent motor restlessness. This syndrome has been called pseudo-akathisia (Munetz & Cornes, 1982; Barnes & Braude, 1985), and its relationship with akathisia and tardive dyskinesia is a matter for speculation (Barnes & Braude, 1985; Stahl, 1985; Munetz, 1986).

The signs of motor restlessness are not invariably present in mild cases of acute akathisia (Braude *et al*, 1983). The typical subjective experience of akathisia in the absence of restless movements has been referred to as 'subjective akathisia' (Van Putten & Marder, 1986). In practice, it may be difficult to differentiate between this condition and subtle manifestations of anxiety or emotional distress unrelated to akathisia. This difficulty is acknowledged by the 'questionable' rating in the global item of the scale, and the existence of subjective akathisia is reflected in the 'mild akathisia' rating, as it does not demand the presence of the characteristic restless phenomena.

The ratings for moderate, marked, and severe akathisia reflect increasing degrees of subjective distress and the desire or compulsion to move, an increasing inability to remain sitting comfortably, and an increasing amount of time spent exhibiting restless movements, such as rocking from foot to foot when standing, and pacing up and down.

#### Reliability

##### Patients and method

Forty-two chronic in-patients, all of whom fulfilled DSM-III criteria (American Psychiatric Association, 1980) for schizophrenia, and were receiving antipsychotic medication, were each assessed by two raters during the same examination period using the rating scale (Barnes & Halstead, 1988). The age range of the sample was 32-65 (median 52) years, and 13 were women.

##### Examination procedure

Each patient was observed seated for at least five minutes while consent to take part in the study was obtained and the patient completed a self-rating scale for anxiety, modified from the Leeds Anxiety Scale (Snaith *et al*, 1976). The patient was then asked to stand up, and was examined for evidence of Parkinsonism using the Extrapyrmidal Rating Scale (Simpson & Angus, 1970). Still standing, patients were then engaged in conversation on neutral topics for several minutes while being observed, and finally were asked specific questions about inner restlessness, and awareness of the features of akathisia. For example, inquiry was made as to whether they experienced a sense of inner restlessness, and whether restless, fidgety feelings could

TABLE I  
Inter-rater reliability

Rating scale item	Linearly weighted Cohen's $\kappa$
Objective	0.738
Subjective	
Awareness of restlessness	0.827
Distress related to restlessness	0.901
Global clinical assessment	0.955

be localised to any part of their body. Further, they were asked if they had any awareness of difficulty sitting comfortably for long periods, an increasing restlessness and tension when required to stand still, or a compulsive desire to move.

If akathisia was present, additional information was collected regarding any diurnal variation of symptoms, and whether the patient was aware of any particular situations which seemed to provoke or exacerbate the restlessness and any associated distress.

#### Inter-rater reliability

The agreement between the two raters on the akathisia scale was calculated. There was high inter-rater reliability on the scores for the four items, expressed in terms of Cohen's  $\kappa$  (Table I).

There was complete agreement between the two raters on the presence of akathisia, that is a rating of two or more on the global clinical assessment item. There was disagreement between the raters on the scores for the severity of akathisia in only two patients. The scores differed by one in both cases.

According to the global rating, akathisia was found in eight (19%) of 42 patients. The condition was rated as being of mild or moderate severity in six patients, and marked or severe in only two. Five (12%) of the 42 patients received a rating of 'questionable' akathisia. They manifested non-specific restless movements and described a vague sense of inner tension, but these features were unconvincing for a diagnosis of akathisia.

Nine (21%) patients were rated as having pseudo-akathisia. These patients exhibited akathistic movements, that is, they scored one or more on the 'objective' item, but did not apparently experience any associated inner restlessness or desire to move their legs, that is, they scored 0 on the 'subjective' item.

#### Discussion

In this small reliability study, the rating scale was found to be viable and practical, and a high level of inter-rater reliability was achieved. The results confirm both the relatively high prevalence of akathisia in chronic schizophrenic patients receiving maintenance antipsychotic drugs, and the existence in a proportion of such patients of pseudoakathisia,

where the characteristic movements of akathisia are observed in the absence of the subjective symptoms.

It is envisaged that the rating on the global item alone should be sufficient for diagnostic purposes, and for measuring change in the overall severity of akathisia in response to treatment. Nevertheless, to rate the global item accurately the elements of the three other items need to be taken into account, and these items should be completed first.

The individual ratings on the two subjective items, 'awareness of restlessness' and 'distress related to restlessness', and the 'objective' item may be of value if an investigator wishes to detect whether the objective and subjective components of akathisia are differentially affected by particular drug treatments, or change independently over time. Also, when assessing a patient with pseudoakathisia, either over time or in the context of a treatment trial, the main measure of the condition is the rating on the 'objective' item. However, the emergence of a score for the 'awareness of restlessness' item might warrant a change in diagnosis to akathisia.

It is recommended that the scale is completed after observation of the patient in more than one setting. Preferably, the patient should be unobtrusively watched in a natural setting, for example while involved in activity on the ward, as well as during a formal interview. Experience with the assessment of patients with akathisia suggests that the situation in which the characteristic restless movements of rocking from foot to foot or treading on the spot are most likely to be observed is when the patient is standing with the rater, engaged in casual conversation on some neutral topic.

We are currently using this scale in a placebo-controlled study of  $\beta$ -adrenoceptor-blocking drugs in akathisia, and in a prevalence study in a population of chronic schizophrenic in-patients. The scale is also being employed in studies by other research groups in the UK and internationally. We plan to examine the reliability of the scale further in these studies, and also hope to test the validity of the scale by using an electronic movement meter to quantify the restless activity of patients, to provide an objective measure of the condition.

#### Appendix: Rating scale for drug-induced akathisia

Patient name:  
Patient research no.:  
Hospital no.:  
Ward:  
Rater:

Patients should be observed while they are seated, and then standing while engaged in neutral conversation (for a

minimum of two minutes in each position). Symptoms observed in other situations, for example, while engaged in activity on the ward, may also be rated. Subsequently, the subjective phenomena should be elicited by direct questioning.

#### Objective

- 0 Normal, occasional fidgety movements of the limbs
- 1 Presence of characteristic restless movements: shuffling or tramping movements of the legs/feet, or swinging of one leg, while sitting, *and/or* rocking from foot to foot or 'walking on the spot' when standing, *but* movements present for less than half the time observed
- 2 Observed phenomena, as described in (1) above, which are present for at least half the observation period
- 3 The patient is constantly engaged in characteristic restless movements, *and/or* has the inability to remain seated or standing without walking or pacing, during the time observed.

#### Subjective

##### *Awareness of restlessness*

- 0 Absence of inner restlessness
- 1 Non-specific sense of inner restlessness
- 2 The patient is aware of an inability to keep the legs still, or a desire to move the legs, *and/or* complains of inner restlessness aggravated specifically by being required to stand still
- 3 Awareness of an intense compulsion to move most of the time *and/or* reports a strong desire to walk or pace most of the time

##### *Distress related to restlessness*

- 0 No distress
- 1 Mild
- 2 Moderate
- 3 Severe

#### Global clinical assessment of akathisia

- 0 Absent  
No evidence of awareness of restlessness. Observation of characteristic movements of akathisia in the absence of a subjective report of inner restlessness or compulsive desire to move the legs should be classified as pseudoakathisia
- 1 Questionable  
Non-specific inner tension and fidgety movements
- 2 Mild akathisia  
Awareness of restlessness in the legs *and/or* inner restlessness worse when required to stand still. Fidgety movements present, but characteristic restless movements of akathisia not necessarily observed. Condition causes little or no distress
- 3 Moderate akathisia  
Awareness of restlessness as described for mild akathisia above, combined with characteristic restless movements

such as rocking from foot to foot when standing. Patient finds the condition distressing

- 4 Marked akathisia  
Subjective experience of restlessness includes a compulsive desire to walk or pace. However, the patient is able to remain seated for at least five minutes. The condition is obviously distressing
- 5 Severe akathisia  
The patient reports a strong compulsion to pace up and down most of the time. Unable to sit or lie down for more than a few minutes. Constant restlessness which is associated with intense distress and insomnia

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