

Methods used in screening antiparkinson activity: Errors in published literature

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Dear Editor

In 1817, James Parkinson an English physician, described the classical symptoms of Parkinson disease, that was characterized by tremor, rigidity and akinesia.[1] An appreciable list of drugs useful in treating parkinsonism is available, but most of these drugs had various other actions and finding of antiparkinson activity was by accident.[2] Screening methods for the detection of antiparkinson activity is indirect. Morpurgo in 1962 described a direct method to screen these compounds.[3] Morpurgo derived these results by a study conducted by Writh et al in 1958, who have described four stages in the rat. Catatonia is a state of neurogenic motor immobility and behavioral abnormality manifested by stupor.[4] The stages are determined by tests at 2, 4, 6 and 22 hours after subcutaneous injection of the phenothiazine. In the stage I, the animal has no desire to make any movements; it sits quietly where it has been placed. However, a light push against the animal can elicit brief movements. In the stage II, the animal remains as in stage I but a push no longer elicits movements. In the stage III, the animal assumes postures as for example when its foreleg is placed on a wooden block 3centimetre high. In the stage IV, the animal maintains its fixed position when, while sitting on its hind legs, one of its forelegs is placed on a wooden block 9 centimetre high and the other foreleg is allowed to hang free. This study was adopted by Morpurgo in 1962 to induce catatonia by administering perphenazine at a dose of 5mg/Kg of body weight intra peritoneally in rats to evaluate antiparkinson drugs by causing extrapyramidal symptoms. However the stage 1 and stage 2 differ from the original

study. The article describes the free movement of the animal in stage I with scoring rate of 0.5 or zero point. This is wrongly understood and the questions arise as to what score to be given in stage I when the animal does not move at all. According to Writh *et al*, in stage 2, animal remains as in stage 1 and a push does not elicit any response. This stage has been also been changed to “animal moves only when pushed” in modified versions.[5] Method of Morpurgo is often practiced in medical research for such evaluation. There may be various reasons for finding this kind of errors in the published articles. So it was observed to enable the researchers understand the original methodology in their research work without any place for scientific lacunae. Further measures should be taken by the researchers and peer reviewers to avoid such errors in future and follow the original research methodology.

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