Relevance of Subtype Classification of PSP

This editorial commentary refers to "Subtypes of PSP and Prognosis: A Retrospective Analysis" by Mahale RR, *et al.* (AIAN 611_20).[1]

Progressive supranuclear palsy (PSP) presents with parkinsonism, poor balance, gaze palsy, cognitive, and behavioral symptoms. The clinical picture may overlap with other parkinsonian disorders, especially other forms of tauopathies. The National Institute of Neurological Disorders and Stroke (NINDS) PSP criteria (1996) have served well for the diagnosis of PSP but it fell short in differentiating various subtypes of PSP. The Movement Disorder Society (MDS) proposed criteria in 2017 which allowed the identification of several PSP phenotypes with different degrees of diagnostic certainty. The MDS criteria have a higher sensitivity and specificity than the previously described criteria for diagnosing PSP.[2] Assigning subtype to a patient with PSP carries some clinical value as individual subtype may have differences in presentation, progression, and response to levodopa.

PSP-Richardson syndrome (PSP-RS) is the most common phenotype of PSP followed by PSP with predominant parkinsonism (PSP-P) and other types. PSP-P has a slower disease progression, better prognosis, and longer survival in comparison with PSP-RS type. Given the developing neuroprotective therapies for PSP, it is essential to understand the rate of disease progression. Various studies have looked into the prevalence, severity, and progression of different subtypes of PSP, but they mostly took PSP-RS and PSP-P phenotypes into account. O'Sullivan *et al.* demonstrated the clinical features of pathologically confirmed cases of PSP (n = 110) and predicted the prognosis by determining the time attainment to reach different clinical disability milestones.[3] Shoeibi *et al.* prospectively followed PSP-RS (n = 82) and PSP-P (n = 56) up to 60 weeks for their global disease progression.[4] They concluded that patients with PSP-RS progressed significantly faster than those with PSP-P, even they had similar disease severity and clinical features at baseline.

In this issue of Annals of Indian Academy of Neurology, Mahale RR and colleagues have categorized patients clinically diagnosed with PSP (n = 334) in different subtypes as per the 2017 MDS criteria. In this retrospective cohort study, authors have presented the frequency and clinical characteristics of each subtype along with their prognosis. Their findings confirm that PSP-RS is the most prevalent among different subtypes of PSP. Like previous studies, they further reiterate that

patients with PSP-RS reached wheelchair dependency earliest whereas those with PSP-P had longer disease duration with a more favorable prognosis. In their study, the frequency of milestones of disability reached was also lower in PSP with the predominant cortico-basal syndrome (PSP-CBS) and PSP with progressive gait Freezing (PSP-PGF) subtypes. This suggests PSP-RS has the worst long-term outcome as compared to all other subtypes. This study has a large number of patients and it does fill up the void of data from India in this regard. But there are some inherent limitations like retrospective design and lack of pathologically confirmed cases.

Authors have done well in pointing out these limitations while putting forward their salient findings.

Overall, the present study emphasizes differential progression in various PSP phenotypes, which might be important in indicating prognosis and in designing future therapeutic trials of PSP.

Koustav Chatterjee, Supriyo Choudhury, Hrishikesh Kumar

Department of Neurology, Institute of Neurosciences Kolkata, Kolkata, West Bengal, India

Address for correspondence: Dr. Hrishikesh Kumar, Department of Neurology, Institute of Neurosciences Kolkata, 185/1 AJC Bose Road, Kolkata - 700 017, West Bengal, India. E-mail: rishi_medicine@yahoo.com

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