The objective of this study was to evaluate whether the sensation of thirst differs between patients with progressive supranuclear palsy (PSP), multiple system atrophy with predominant parkinsonism (MSA-P), and Parkinson’s disease (PD). We administered a standardized thirst questionnaire to age-, sex-, and stage-matched patients with probable PSP, PD, and MSA-P and healthy controls (HC), n = 15/group. In an independent cohort (n = 10/group), we provoked thirst by infusing hypertonic NaCl in age-, sex-, and stage-matched patients with PSP, PD, and MSA-P and recorded plasma osmolality and thirst (visual analog scale). On questioning, 73% of PSP patients reported a reduced sensation of thirst (hypodipsia) compared with previous years (HC, 0%; PD, 7%; MSA-P, 7%; P < .0001). On NaCl infusion, PSP patients reported significantly lower thirst than did PD and MSA-P patients for all times from 20 to 95 minutes (P < .05). The thirst score at 25 minutes discriminated individual PSP patients well from PD and MSA-P patients. Hypodipsia appears helpful in differentiating PSP from PD and MSA-P.