Idiopathic Parkinson's disease (IPD) and Parkinson plus syndrome (PPS) are the most common movement disorders associated with neurodegenerative disease. A clinical differential diagnosis of IPD and PPS is often complicated by the presence of symptoms that are common to both groups. Since these disease have a different pathophysiology in the cortical and subcortical brain structures, assessing the regional cerebral glucose metabolism might help in making a differential diagnosis. The ¹⁸F-FDG PET images of IPD, MSA and PSP patients were assessed by pattern analysis using statistical parametric mapping and image registration. Verification of the image registration was made using a multimodality brain phantom study. Twenty-four patients, 8 patients (mean age 67.9 10.7y; M/F: 3/5) with IPD, 9 patients (57.9 9.2y; M/F: 4/5) with MSA and 7 patients (67.6 4.8y; M/F: 3/4) with PSP were enrolled in this study. All subjects and 22 age matched normal controls underwent ¹⁸F-FDG PET. The each of the IPD, MSA and PSP patients were individually compared with the normal control group using a two-sided *t*-test for statistical parametric mapping (uncorrected p<0.05, extent threshold>100voxel). The MSA group showed significant hypometabolism in the putamen and pons compared to the IPD group. In addition, the PSP group showed significant hypometabolism in the caudate nucleus, the thalamus, midbrain compared to the IPD group. In conclusion, an assessment of the ¹⁸F-FDG PET images using the image registration and statistical parametric mapping might be a useful adjunct to a clinical examination when making a differential diagnosis of Parkinsonism.