***Calculations of brain region volume.*** To calculate the volume of each brain region, the preprocessed data were firstly registered to a standard 3D-T1WI-based template (Johns Hopkins University) by linear (rigid transformation) and nonlinear (affine transformation) registrations. And then the volume of each brain region can be estimated by Eq.(1):



where, *Vi* is the brain volume of the *i*th region of individual subjects, *Vt* represents the corresponding area in the template to accumulates. is the determinant of 3×3 sub-matrix in upper left corner of rigid transformation matrix, and is the determinant of 3×3 sub-matrix in upper left corner of affine transformation matrix. *JF* is Jacobian. For linear transformation, *JF* is a constant which equal to the inverse of the determinant of the 3×3 sub-matrix in the upper left corner of the transformation matrix. For non-linear transformation, *JF* is a three-dimensional function.