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The Impact of Comorbidity Type on Cognitive Function across Different Stroke Phases

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Abstract

This study examines how different comorbidity types influence cognitive function throughout various phases of stroke. Using data from the China Health and Retirement Longitudinal Study (CHARLS), we conducted a longitudinal analysis of cognitive function among stroke patients, grouped by comorbidity profiles: no comorbidity, concordant, discordant, mental health-related, and mixed comorbidities. Incident stroke cases and propensity score-matched non-stroke controls were classified into pre-stroke, acute-phase, and post-stroke stages. Linear mixed-effects models with quadratic terms were employed to assess nonlinear cognitive trends. Among 13,445 participants (916 stroke, 12,529 controls), stroke patients exhibited significantly lower baseline cognitive function and faster decline over time (? = -0.01, $p < 0.001$). Cognitive function declined sharply from pre-stroke to acute phase (? = -12.856, $p < 0.001$), with partial recovery post-stroke (quadratic ? = 17.944, $p < 0.001$). Mental health comorbidities accelerated cognitive decline during recovery (? = -4.927, $p = 0.026$), while concordant comorbidities worsened cognitive status (? = -3.67, $p = 0.048$). These findings underscore the need for tailored interventions addressing specific comorbidity types to mitigate cognitive impairment in stroke survivors.

Keywords: Cognitive Function, Comorbidity, Longitudinal Study, Recovery, Stroke Phases