Prior studies have suggested that traumatic brain injury may affect cardiac function. Our study aims were to determine the frequency, longitudinal course, and admission risk factors for systolic dysfunction in patients with moderate-severe traumatic brain injury. DESIGN: Prospective cohort study. SETTING: Level 1 trauma center. MEASUREMENTS: Transthoracic echocardiogram within 1 day and over the first week after moderate-severe traumatic brain injury; transthoracic echocardiogram within 1 day after mild traumatic brain injury (comparison group). MEASUREMENTS AND MAIN RESULTS: Systolic function was assessed by transthoracic echocardiogram, and systolic dysfunction was defined as fractional shortening less than 25%. Multivariable Poisson regression models examined admission risk factors for systolic dysfunction. Systolic function in 32 patients with isolated moderate-severe traumatic brain injury and 32 patients with isolated mild traumatic brain injury (comparison group) was assessed with transthoracic echocardiogram. Seven (22%) moderate-severe traumatic brain injury and 0 (0%) mild traumatic brain injury patients had systolic dysfunction within the first day after injury (p < 0.01). All patients with early systolic dysfunction recovered in 1 week. Younger age (relative risk, 0.87; 95% CI, 0.79-0.94; for 1 yr increase in age) and lower admission Glasgow Coma Scale score (relative risk, 0.34; 95% CI, 0.20-0.58; for one unit increase in Glasgow Coma Scale) were independently associated with the development of systolic dysfunction among moderate-severe traumatic brain injury patients. CONCLUSIONS: Early systolic dysfunction can occur in previously healthy patients with moderate-severe traumatic brain injury, and it is reversible over the first week of hospitalization. Younger age and lower admission Glasgow Coma Scale score are independently associated with the development of systolic dysfunction after moderate-severe traumatic brain injury ¹⁾.

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