

Prognostic factors of short-term neurologic recovery among children with acute flaccid myelitis–Taiwan, 2015–2018

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Background

Global reemergence of acute flaccid myelitis (AFM) since 2014 has been epidemiologically associated with enterovirus D68 (EV-D68), but the determinants of outcome remained unclear. In 2017, Taiwan Centers for Disease Control received increased notifications of AFM coincident with rising detection of EV-D68. We sought to explore the association with EV-D68 and identify prognostic factors of neurologic recovery.

Methods

We reviewed the national acute flaccid paralysis surveillance during January 2015–February 2018, and selected AFM patients using US-CDC standardized case definition (2017). We evaluated neurologic recovery by comparing nadir muscle strength (Medical Research Council Scale, MRCS) and functional status (modified Rankin Scale, mRS) at discharge between follow-up within 3 months. Good short-term recovery was defined as improvement > 1 grade of MRCS/mRS, or recovery \geq MRCS grade 4/mRS score 2. We used Cox proportional hazard model to identify factors associated with good recovery.

Results

We included 19 boys and 22 girls with AFM aged from 0.8 to 15.3 years. Twenty-six (63%) occurred during the EV-D68 outbreak (July 2017–January 2018), of which 11 (42%) were tested positive for EV-D68 from nasopharyngeal swab. Mean follow-up duration was 47.8 days (range 5–97). Age, gender, number of involved limbs, cerebrospinal fluid and radiologic findings, and immunoglobulin treatment were not associated with recovery. Compared with patients not involved with EV-D68 outbreak, AFM patients occurred during EV-D68 outbreak were less likely to have good recovery (66% vs. 35%). During EV-D68 outbreak, higher nadir MRCS (HR =2.1; CI: 1.1–4.4) and avoidance of steroid treatment were prognostic factors of good recovery (HR=4.9; CI: 1.2–18.8).

Conclusions

The increase of AFM patients was associated with EV-D68 outbreak and the short-term neurologic recovery was less favorable. Steroid in AFM during EV-D68 outbreak should be used cautiously. Ongoing surveillance of EV-D68 could raise

awareness and help early intervention.