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Abstract in English

Tatsuya Tsuji

Trends and patterns in the practice of pediatric sedation for magnetic resonance imaging in Japan: A longitudinal descriptive study from 2012 to 2019

Worldwide, pediatric sedation for magnetic resonance imaging is a standard practice; however, there are few studies on its trends and patterns. This study aimed to investigate the trends and patterns of pediatric sedation for magnetic resonance imaging in Japan and determine the incidence of and risk factors for adverse events/interventions.

This longitudinal descriptive study assessed children (age < 15 years) who underwent sedation for magnetic resonance imaging between April 2012 and December 2019 in Japan using a nationwide claims database. We assessed the patients' demographic characteristics, time trends in sedatives, sedative patterns by age, and adverse events/interventions within two post-sedation days. Further, we used multivariable logistic regression models to explore factors related to the incidence of adverse events/interventions.

We identified 29 187 cases (median age, 2.0 years; 55.2% males). The most common sedative was triclofos sodium (n = 18 812, 51.7%). There was an increasing trend in barbiturate use (17.0% [2012] to 25.0% [2019]) and decreasing trends in the use of triclofos sodium (56.4% [2012] to 47.7% [2019]) and chloral hydrate (15.6% [2012] to 10.8% [2019]). We identified 534 adverse events/interventions in 460 cases (1.5%). Multivariable logistic regression analyses revealed that the incidence of adverse events/interventions mainly increased with the number of sedatives (≥ 3 ; adjusted odds ratio, 5.10; 95% confidence interval, 3.67–7.10) and unscheduled setting (adjusted odds ratio, 6.28; 95% confidence interval, 4.85–8.61); further, it decreased with high hospital procedure volume (adjusted odds ratio, 0.62; 95% confidence interval, 0.49–0.78).

Based on a Japanese real-world setting, there is an increasing trend in barbiturate use and decreasing trends in the use of triclofos sodium and chloral hydrate in pediatric sedation for magnetic resonance imaging. Low hospital procedure volumes were associated with an increased risk of adverse events/interventions.