

論 文 要 旨

Safety, speed, and effectiveness of air transportation for neonates

平川 英司

Background

In Japan, 44.3% of neonates are delivered in private clinics without an attending pediatrician. Obstetricians must resuscitate asphyxiated neonates in unstable condition, such as respiratory failure, and they are frequently transferred to tertiary perinatal medical centers. There have been no studies comparing physiological status and prognosis between neonates transported by ambulance and helicopter.

Methods

Medical and transport records were used to compare physiological status between neonates transported to Kagoshima City Hospital by ground and air transport between January 1, 2013, and December 31, 2017.

Results

Data from 425 cases transferred by ground and 143 by air were analyzed. There were no significant differences between the two groups in mean gestational age, mean birth weight, fetal blood pH, Apgar score, or SNAPPE-II on arrival to the tertiary center (16.3 ± 15.4 [95% CI; 13.2, 17.7] vs. 16.4 ± 15.4 [95% CI; 13.9, 19.0], respectively; $P = 0.999$); both groups had SNAPPE-II score 10 – 19, indicating no difference in mortality risk. The times to starting first aid and to admission to the intensive care unit were significantly reduced in neonates transported by air than by ground. In subgroup analysis of patients gestational age ≤ 28 weeks, all cases of severe intraventricular hemorrhage (IVH) were observed in the ground transportation group.

Conclusions

Neonatal transportation by air is as safe as ground transportation, and time to first aid and intensive care are significantly reduced by transportation by air than by ground. Air transport could also contribute to prevention of IVH in neonatal transportation.