

**Risk factors analysis of mortality within 1 month after birth in congenital diaphragmatic hernia**

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**Background:** Identifying risk-factors that prognosticate outcome is critical to comparing patient populations and management approaches and to the development of best practices. The aim of this study is to investigate a perinatal risk factors of mortality within 30-day in congenital diaphragmatic hernia (CDH) patients.

**Methods:** We performed a retrospective study of diagnosed CDH from November 2000 to August 2016. We analyzed 10 prenatal risk factors and 14 postnatal risk factors. All postnatal variables were measured up to 24 hours after birth. Continuous variables were analyzed by transforming into categorical variables after defining the cutoff value using the ROC curve. Median follow up was 256 days (1~4016).

**Results:** There were 61 males and 34 females. The mean gestational age was 38.86±1.51 weeks and mean birth weight was 3085.5±533.8 gram. 83 patients were diagnosed prenatally. Overall survival rate within 30 days was 63.2%. On multivariate analysis of prenatal risk factors, polyhydramnios(OR 16.4, 95% CI 2.5-107.27), GA at diagnosis < 24 weeks(OR 6.78, CI 1.01-45.74), LHR < 1.4(OR 33.57, CI 2.68-419.58) and QLI < 0.623(OR 12.46, CI 1.96-79.24 were associated with mortality. Multivariate analysis of postnatal risk factors, NO apply(OR 20.53, CI 2.28-184.3), Apgar score at 5 minute < 7(OR 12.95, CI 1.58-105.71), worst OI in first 24 hours > 36.8(OR 22.8, CI 2.59-200.61), best OI in first 24 hours > 7.9(OR 22.85, CI 2.07-252.05) and tricuspid regurgitation ≥ mild(OR 27.61, CI 2.47-308.49) were independent predictors of 30-day mortality. By using these nine factors, perinatal prognostic index of mortality within 30-day in CDH was developed (AUC: 0.991, p<0.001).

**Conclusions:** Knowing the risk factor is a very important indicator in predicting prognosis and managing patients. We analyzed nine independent perinatal risk factors and developed a perinatal prognostic index of mortality within 30-day, which can be helpful to approach and manage the CDH patients.

