

Children less than 2 with Down syndrome and suffering from respiratory syncytial virus have a longer and more costly hospitalization



To the Editor:

In regard to the article by Mitra et al, we would like to provide additional data.¹ We used the 2016 Kids' Inpatient Database developed for the Healthcare Cost and Utilization Project by the Agency for Healthcare Research and Quality, which captures admission data from more than 2000 hospitals in the United States.² We separated further all cases to limit the admission age to less than 2 years. The *International Classification of Diseases, 10th Revision*, Clinical Modification codes for respiratory syncytial virus and Down syndrome were also applied.³

A total of 4 388 539 weighted admissions for children less than age 2 years were recorded, among whom 14 029 had Down syndrome. There were 72 151 cases of respiratory syncytial virus found among children less than 2 years of age and only 806 (1.1%) also had Down syndrome (OR, 3.678; 95% CI, 3.4-4.0; $P < .01$). We evaluated further the differences in the length of stay between children infected with respiratory syncytial virus with and without Down syndrome. The mean length of stay was longer for those with Down syndrome (10.7 days) compared with those without Down syndrome (4.6 days; $B = 6.036$; $P < .01$; 95% CI, 5.386-6.685). These 2 findings correspond with the suggestions made by the authors.

The *International Classification of Diseases, 10th Revision*, Clinical Modification codes for ventilation and congenital heart disease are heterogeneous and their associated risk differences were not calculated. The mean cost of stay was higher for patients with Down syndrome (\$111 531.84 compared with \$38 364.17; $B = 73 167.7$; 95% CI, 62 885.5-83 449.9; $P < .01$).

Although the Healthcare Cost and Utilization Project data have some limitations, they provide a very large sample size and we highly encourage further research using the database.

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Assessment of hemodynamic parameters in the assessment of a patent ductus arteriosus: It is still a puzzle



To the Editor:

de Freitas et al showed in their retrospective study that a nonindexed ductal diameter demonstrated the best correlation with transductal shunt volume, whereas weaker associations were seen between a ductal diameter indexed to weight and indexed to left pulmonary artery diameter.¹ Overall, 104 neonates born preterm with a gestational age of <30 weeks were examined with targeted echocardiography evaluation of a patent ductus arteriosus (PDA) performed between 7 and 30 days of life. The best correlation was found with markers of systemic hypoperfusion, such as diastolic flow reversal in the descending aorta and celiac artery, whereas markers of pulmonary overcirculation (left ventricular end-diastolic diameter and left ventricular output) showed only fair correlation with nonindexed ductal diameter.

We recently performed a retrospective analysis of a number of PDA parameters that may be associated with acute kidney injury (AKI) in 422 very low birth weight infants,² with AKI functioning as a surrogate parameter for the hemodynamic relevance of the PDA (hemodynamic forward failure). AKI developed in 50.9% of infants with spontaneous PDA closure, in 56.1% of infants who received intravenous ibuprofen treatment, in 75.0% of infants who had surgery, and in 71.4% of infants who received both medical and surgical treatment. Using univariate analysis, AKI was significantly associated with birth weight and gestational age, Apgar scores at 10 minutes, the PDA size corrected for birth weight, a PDA with 3 affected circulatory territories (cerebral, mesenteric/celiac, and renal), PDA surgery, and gentamicin.

With regard to hemodynamic parameters, our findings, in part, support the findings by de Freitas et al, in that the association of AKI with 3 affected circulatory territories in our series would correspond with systemic hypoperfusion and transductal shunt volume in the study by de Freitas et al.^{1,2} However, it is also important to note that contrary to the results by de Freitas et al, in our study AKI was associated with the size of the PDA