

Abstract Submitted
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Characterization of intraventricular flow patterns in healthy neonates from conventional color-Doppler ultrasound¹ SHAI TEJMAN-YARDEN, CALLIE RZASA, Dept of Cardiology, Rady Children's Hospital, San Diego, CA, YOLANDA BENITO, Dept of Cardiology, Gregorio Maranon Hospital, Madrid, Spain, MARTA ALHAMA, Dept of Internal Medicine, Scripps Green Hospital, La Jolla, CA, TINA LEONE, Dept. of Pediatrics, UC San Diego, RAQUEL YOTTI, JAVIER BERMEJO, Dept of Cardiology, Gregorio Maranon Hospital, Madrid, Spain, BETH PRINTZ, Dept of Cardiology, Rady Children's Hospital, San Diego, CA, JUAN C. DEL ALAMO, MAE Dept, UC San Diego, La Jolla, CA — Left ventricular vortices have been difficult to visualize in the clinical setting due to the lack of quantitative non-invasive modalities, and this limitation is especially important in pediatrics. We have developed and validated a new technique to reconstruct two-dimensional time-resolved velocity fields in the LV from conventional transthoracic color-Doppler images. This non-invasive modality was used to image LV flow in 10 healthy full-term neonates, ages 24-48 hours. Our results show that, in neonates, a diastolic vortex developed during LV filling, was maintained during isovolumic contraction, and decayed during the ejection period. The vortex was created near the base of the ventricle, moved toward the apex, and then back toward the base and LVOT during ejection. In conclusion, we have characterized for the first time the properties of the LV filling vortex in normal neonates, demonstrating that this vortex channels blood from the inflow to the outflow tract of the LV. Together with existing data from adults, our results confirm that the LV vortex is conserved through adulthood.

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