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Complications associated with the current sequential escalating pharmacological treatment of early postnatal hypotension in extremely premature infants

Introduction: Early Postnatal Hypotension (EPH) in premature infants is treated with Vasopressor-Inotropes (VI) in escalating doses, followed by Hydrocortisone (HC) if VI therapy fails. There is no report on the adverse effects of this standard clinical practice.

Objective: To investigate the complications associated with the escalating treatments of hypotension with sequential inotropes and hydrocortisone in Extremely Low Birth Weight (ELBW) neonates.

Methodology: In a retrospective case-control study the complications and adverse outcomes associated with VI (VI) and HC (HCVI) treatments were compared with contemporaneous normotensive medication naïve controls (C) via standard univariate and multivariate analyses.

Results: VI (n=74) Vs. C (n=124): Birth Weight (BW), Gestational Age (GA) and receipt of Antenatal Steroid (ANS) did not differ. The occurrence of Gestation associated Diabetes Mellitus (GDM) and risks for Patent Ductus Arteriosus (PDA), Intraventricular-periventricular Hemorrhage (IVH), Spontaneous Intestinal Perforation (SIP), Ventriculomegaly (VM) and oxygen dependence at 36 postmenstrual week of life (BPD) were higher in VI group. HCVI (n=69) Vs. C: HCVI recipients had lower BW, GA and receipt of ANS. The risks for IVH, BPD, air leaks and PDA were higher in the treated infants. The occurrences of SIP, VM and GDM did not differ while that of maternal hypertension trended to be less in HCIV recipients ($p = 0.06$).

Conclusions: Hypotensive ELBW infants treated with vasopressor-inotropes or with hydrocortisone-vasopressor-inotropes are susceptible to IVH, BPD and PDA. Those who receive inotropes are at additional risks for SIP and VM. GDM increases the occurrence of hypotension which responds to VI and does not need HC. Maternal hypertension does not contribute to VI responsive and trends to decrease VI refractory hypotension.

Biography: Rita Verma is an attending neonatologist and Professor of Pediatrics at Nassau University Medical Center, NY, USA. She graduated from medical school in India at the top of her class of 210 students with honors. She worked at the State University of New York School of Medicine, Stony Brook; and at the University of Maryland School of Medicine as Associate Professor before joining Nassau University Medical Center. She has published over 90 peer reviewed manuscripts and abstracts and has presented her research at national and international meetings. She serves as editorial board and is a manuscript reviewer for several journals. She is a member of the Neonatal- Perinatal, Critical Care and Epidemiology subcommittees of the American Academy of Pediatrics and is acknowledged for her contribution in making pediatrics and neonatology protocols for the academy. She has mentored many medical students, pediatric residents and neonatology fellows over the years.

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