

**AAP DISTRICT VIII SECTION ON NEONATAL PERINATAL MEDICINE**

**2021 ANNUAL CONFERENCE ORIGINAL RESEARCH (BASIC SCIENCE or CLINICAL)  
ABSTRACT SUBMISSION FORM**

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**DEADLINE FOR RECEIPT OF ABSTRACT IS FEBRUARY 19, 2021.** Submissions will be accepted for either poster or oral presentation. Authors will be notified of acceptance and format for presentation (poster or poster symposium) by **March 12, 2021.**

**Title:** Clinical features and echocardiographic parameters of relative adrenal insufficiency (RAI) among preterm infants: a five-year review

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**Background:** Infants born at low gestational age (GA) often present with a septic shock-like picture in the neonatal intensive care unit (NICU). Some of these premature infants are noticed to exhibit inadequate cortisol levels at such time of stress, an entity termed relative adrenal insufficiency (RAI), which is postulated to further compromise the compensatory mechanisms and circulatory collapse.

**Objective:** To review the clinical features and echocardiographic parameters of RAI in preterm infants, and their correlation with adrenocorticotrophic hormone (ACTH) stimulation tests in a quaternary NICU over 5 years.

**Methods:** This is a single centre retrospective study. Infants born at <32 weeks GA between January 2015 to June 2019, admitted to the British Columbia Women's Hospital NICU (Vancouver, British Columbia), were reviewed. Infants who presented with a shock-like picture with a cortisol level at this time of stress of < 250nmol/L were included. Infants who have received corticosteroid prior to cortisol collection were excluded.

**Results:** There were 45 eligible infants in our study (5.6% of NICU admissions) (figure 1). Their median [IQR] for GA, birth weight and age of onset of RAI were 25 weeks [24, 26], 690g [590, 815], and 13 days of life [8, 24], respectively. Among these infants, 73% developed significant hypotension or respiratory failure [Table 1]. 13 infants (28.9%) had echocardiogram performed at the time of cardiopulmonary deterioration and all had normal left ventricular (LV) fractioning shortening (median [IQR]: 42% [38-49%]) and LV output (median [IQR]: 242ml/kg/min [155-330ml/kg/min]). Only 19 infants (42.2%) received hydrocortisone, with a median [range] treatment duration of 2 days [range: 1 – 8]. Lower cortisol level was associated with lower GA at the presentation of RAI ( $p=0.049$ ), but not predictive of adverse clinical and laboratory outcomes [Table 2]. ACTH stimulation tests were performed in 20 (44.5%) infants and 3 (15%) were found to be abnormal, and the results were not correlated with clinical features [Table 3].

**Conclusion:** In our cohort, we identified 5% of NICU admission with RAI, based on the cut-off of cortisol <250nmol/L at the time of shock-like presentation. Lower cortisol level was associated with lower GA at the presentation of RAI. Further prospective study with well-defined protocol is needed to understand the use of cortisol and its clinical implications.