Appendix for “High risk of necrotising enterocolitis in term-born neonates with congenital heart disease delivered by caesarean section: a case-control study”

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Table 1: Modified Bell staging criteria for Necrotizing Enterocolitis

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Stage | Classification | Systemic signs | Abdominal signs | Radiologic signs |
| IA | Suspected | Temperature instability, apnoea, bradycardia, lethargy | Gastric retention, abdominal distention, emesis, heme-positive stool | Normal or mild intestinal dilation, mild ileus |
| IB | Suspected | Same as above | Bright red bloody stool | Same as above |
| IIA | Definite, mildly ill | Same as above | Same as above, plus absent bowel sounds with or without abdominal tenderness | Intestinal dilation, ileus, pneumatosis intestinalis |
| IIB | Definite, moderately ill | Same as above, plus mild metabolic acidosis and mild thrombocytopenia | Same as above, plus absent bowel sounds, definite tenderness, with or without abdominal cellulitis or right lower quadrant mass | Same as IIA, plus definite ascites |
| IIIA | Advanced, severely ill, intact bowel | Same as IIB, plus hypotension, bradycardia, severe apnoea, combined respiratory and metabolic acidosis, DIC, and neutropenia | Same as above, plus signs of peritonitis, marked tenderness, and abdominal distention | Same as IIB, plus definite ascites |
| IIIB | Advanced, severely ill, perforated bowel | Same as IIIA | Same as IIIA | Same as as IIB, plus pneumoperitoneum |

DIC: disseminated intravascular coagulation

Taken from: Neu J. Necrotizing enterocolitis: the search for a unifying pathogenic theory leading to prevention. Pediatr Clin North Am 1996; 43:409

Table 2. Three way table of congenital heart disease classification, RACHS-1 category and case-control status

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Perioperative care by lesion** | **RACHS-1 category (controls)** | | | | | **RACHS-1 category (cases)** | | | | |
| **2** | **3** | **4** | **6** | **Total** | **2** | **3** | **4** | **6** | **Total** |
| **Shunt lesion** | 6 | 22 | 12 |  | 40 | 1 | 5 | 7 | 1 | 14 |
| **LVOTO** | 10 | 4 | 33 | 4 | 51 | 2 | 1 | 12 | 2 | 17 |
| **RVOTO** | 6 | 17 | 1 |  | 24 | 2 | 6 |  |  | 8 |
| **SV lesion** |  | 3 | 1 | 43 | 47 |  |  | 2 | 14 | 16 |
| **Other conotruncal lesion** |  | 11 | 3 |  | 14 |  | 2 | 2 | 1 | 5 |

RACHS-1: risk adjusted classification for congenital heart surgery-1; LVOTO: left ventricular outflow tract obstruction; RVOTO: right ventricular outflow tract obstruction; SV: single ventricle

Table 3. Full multivariable model (n=238)

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unadjusted odds ratio (95% CI)** | **Adjusted odds ratio**  **(95% CI) from final model** |
| Gestational age at birth, per wk increase | 1.09 (0.84 – 1.41) | 1.20 (0.90-1.60) |
| Mode of delivery: caesarean vs vaginal | 1.88 (1.00 – 3.53) | 2.64 (1.31-5.29) |
| Preoperative enteral feeding | 1.31 (0.69 – 2.46) | 1.35 (0.68-2.69) |
| Male | 1.48 (0.80 – 2.74) | 1.52 (0.76-2.97) |
| Cardiac arrest during admission | 3.27 (1.44 – 7.45) | 3.90 (1.58-9.63) |
| Non-cardiac congenital anomaly | 1.96 (0.58 – 2.48) | 1.36 (0.62-3.00) |
| Preoperative mechanical ventilation | 1.81 (0.97 – 3.36) | 1.75 (0.87-3.53) |

Figure 1: Hypothesized mechanistic model for caesarean birth and development of NEC in newborns with CHD 