**Analysis of procedural complications from diagnostic and therapeutic catheterizations performed on low birth weight infants ≤ 2.5 kg compared to infants > 2.5 kg**

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**BACKGROUND**

- The increased survival of low birth weight infants (< 2,500 g) with congenital heart disease has led to an increase in diagnostic and therapeutic cardiac catheterizations for these patients.
- There is concern over the increased risk that low birth weight poses in regards to the incidence of complications from these procedures.
- Reports from Taiwan, the UK, and Germany have examined such risk but have been limited by lack of controls [1,2,4].
- United States studies have effectively compared both low birth weight infants to a control group but were limited by a low number of subjects [3,5].
- There is a lack of moderate sized case-control reviews examining the effect of low birth weight on complication incidence.

**METHODS**

- A literature search was performed using PubMed and Google Scholar back to 1985 with the search terms “cardiac catheterization”, “complications”, and “low birth weight”.
- From 01/03 to 01/09, infants ≤ 2.5 kg at the time of the first procedure were identified and compared to a randomly selected 3:1 case control of infants weighing > 2.5 kg at the time of the first procedure.
- Electronic medical records and angiography reports were reviewed.
- Demographic and procedural data was collected (Table 1).
- Major and minor complication data was collected (Table 2).
- Data not displayed included the primary diagnosis due to wide variability.
- All data was analyzed using SPSS.
- A p value of < 0.05 was determined to be significant.

**RESULTS**

- A total of 46 infants ≤ 2.5 kg and 136 infants > 2.5 kg underwent cardiac catheterization.
- The overall incidence percentage of procedural complications was higher in infants ≤ 2.5 kg compared to infants > 2.5 kg (35% vs 18%, p=0.015) due to a greater proportion of minor complications (35% vs 17%, p=0.011).
- In regards to minor complications, there was a greater incidence of hypotension requiring IV fluids in infants ≤ 2.5 kg (7% vs 0%, p=0.015).
- Infants ≤ 2.5 kg received more contrast volume (5.2 +/- 2.3 vs 4.6 +/- 1.3 cc/kg, p=0.023) and post-procedure BUN was higher (16.4 +/- 13.4 vs 12.2 +/- 8.5 mg/dL, p=0.039).
- The percentage of infants having major complications was not higher in the ≤ 2.5 kg group (2.2% vs 2.2%).
- No procedural deaths occurred in either group.

**CONCLUSIONS**

- Low birth weight infants ≤ 2.5 kg were at higher risk for procedural complications compared to larger infants > 2.5 kg.
- The increased risk was associated with minor complications, particularly hypotension requiring IV fluids.
- There was no difference in major complications.
- No procedural deaths occurred in either group.

**LIMITATIONS**

- Retrospective study limited by full disclosure of all complications and accurate input of data.
- Possibility of Type II error as a result of low power due to small N.
- Data contributing to outcome but not included in this study: physician performing procedure, patient’s socioeconomic status, race, and ethnicity.

**REFERENCES**

(4) Simpson JM, et al. Cardiac catheterization of low birth weight infants. Am J Cardiol 2001;87:1372-77
(5) Sutton NT. Cardiac Catheterization in infants weighing less than 1,500 grams. Catheter Cardiovasc Interv 2006;68:948-50