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Oligohydramnios in post term pregnancies and perinatal outcomes

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Introduction

Post term pregnancies (>41 weeks gestation) are associated with an increased risk of perinatal morbidity and mortality, obstetric intervention and maternal morbidity.¹ Current guidelines recommend increased surveillance for post-term pregnancies, including measurement of amniotic fluid index (AFI).² Using the 4-quarant technique there are a number of definitions of oligohydramnios in post term pregnancies including AFI <5th centile, mean vertical pocket (MVP) <3 and MVP <1.³ The incidence of oligohydramnios varies greatly depending on the definition. It has been suggested that the presence of oligohydramnios increases rates of obstetric intervention¹ however based on current literature the impact of oligohydramnios on perinatal outcomes is inconclusive.

Objectives

The primary aim of this study was to assess the association between perinatal outcomes and presence of oligohydramnios in post term pregnancies. Perinatal outcomes includes obstetric interventions and adverse neonatal outcomes. The secondary aim was to establish the incidence of oligohydramnios in post term pregnancies based on different ultrasonographic definitions.

Methods

A retrospective clinical audit of patients delivering at Sunshine Hospital was conducted. All pregnancies extending beyond 40 weeks gestation between 01/01/2016 – 31/12/2017 (24 month period) were identified using the Birthing Outcome System (BOS) Database. Data were extracted from the Viewpoint ultrasound database and the BOS maternity database and entered directly into an Excel database. STATA/IC14.2 was used for data analysis, categorical data was analysed using chi-squared tests.

Results

Between 01/01/2016 – 31/12/2017 (24 months) 11061 women gave birth at Sunshine hospital. Of these, 3315 singleton pregnancies continued past 40+0 weeks and 964 underwent ultrasounds scans by a sonographer or credentialed midwife after 40 weeks including AFI and MVP calculations. Four of these scans diagnosed an FDIU and were excluded leaving a total of 959 live births after 40 weeks with completed US scans. For pregnancies with multiple completed US scans the scan closest to the date of delivery was used for analysis. **Table 1** shows the incidence of oligohydramnios based on the gestation specific definitions proposed by Moore et al⁴

Table 1. Incidence of oligohydramnios

	Number (%)
AFI <5 th centile	154 (16%)
MVP ≤ 1cm	24 (2.5%)
MVP ≤ 2cm	72 (7.5%)
MVP ≤ 3cm	174 (18%)

Obstetric interventions:

In comparing expedited delivery (induction of labour or immediate caesarean section) vs. expectant management (awaiting spontaneous onset of labour) odds of expedited delivery were significantly higher across all definitions of oligohydramnios (**Table 2.**) The odds of undergoing caesarean section were found to be more than 1.5 times higher in pregnancies with AFI < 5th centile (OR 1.56, p=0.02). However this finding was not observed when oligohydramnios was based on measurement of MVP. Oligohydramnios was not associated with an increase in the rates of operative vaginal delivery or scalp lactate sampling.

Table 2. Expedited delivery vs. Expectant management in oligohydramnios

	OR (expedited delivery vs. expectant management)	P value
AFI <5 th centile	5.26	<0.01
MVP ≤ 1cm	7.27	<0.01
MVP ≤ 2cm	5.62	<0.01
MVP ≤ 3cm	2.48	<0.01

Neonatal outcomes:

Women with an MVP of <1cm were found to have more than 3 times higher odds of meconium stained liquor (OR 3.63, p<0.01), however there was no association between the presence of meconium liquor and oligohydramnios for all other definitions.

No association was found between low Apgar scores or special care nurse admission and oligohydramnios.

Conclusion

This study determined the incidence of oligohydramnios in post term pregnancies based on different ultrasonographic definitions. Oligohydramnios in post term pregnancies strongly correlated with expedited delivery but was not found to have an association with most other perinatal outcomes. Only oligohydramnios defined as MVP <1cm was associated with a significant increase in the rate of meconium stained liquor.

References

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