

SHORT INTER-DELIVERY INTERVAL: ASSOCIATION WITH ABNORMAL PLACENTAL CORD INSERTION: SECONDARY ANALYSIS OF A COHORT STUDY

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OBJECTIVES

- The primary observational cohort study concluded that abnormal placental cord insertion (PCI) were significantly associated with an increased risk of small for gestational age and low birth weight.¹
- The objective of this secondary analysis is to examine the connection between short inter-delivery interval and risk of abnormal placental cord insertion.

The umbilical cord insertion site to the placenta can be described as central, eccentric, marginal or membranous.

- Central and eccentric placental cord insertion (PCI) arises from the placental mass
- Marginal PCI is when the insertion site is less than 2cm from the placental edge
- Velamentous or membranous PCI is when the insertion site is into the chorioamniotic membranes rather than the placental mass (Figure 1).

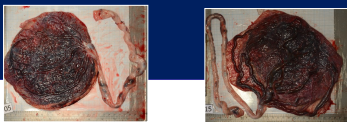


Figure 1:

Placental Cord Insertion Categorisation (Source: Images from primary study¹)

STUDY DESIGN

The primary study was prospective cohort study examined 1012 placentas from consecutively delivered singleton pregnancies in a tertiary centre between 24+0 to 42+0 weeks of pregnancy.

PCIs were categorised as central/eccentric, marginal or velamentous with marginal and velamentous classified as abnormal PCIs. (Figure 1) Distance of PCI to the placental margin was measured digitally using ImageJ software (Figure 3).

in this secondary analysis

564 (55.7%) women were included in this secondary analysis. 448 (44.3%) women were excluded, of which 376 were primigravidae and 72 multigravida where the previous delivery date were unavailable.

Overall median inter-delivery interval for the cohort is 36 months. The number of pregnancies with inter-delivery intervals of 15 months or less is 41 (7.3%). The inter-delivery rates of 15 months or less is higher for velamentous cord insertion, 9.5% (n=2) vs. 7% (n=3) in marginal cord insertion and 7.4% (n=36) for normal placental cord insertion. However, the difference were not statistically significant with p-value of 0.845

Results

Overall median inter-delivery interval for the cohort is 36 months.

The number of pregnancies with inter-delivery intervals of 15 months or less is 41 (7.3%). The inter-delivery rates of 15 months or less is higher for velamentous cord insertion, 9.5% (n=2) vs. 7% (n=3) in marginal cord insertion and 7.4% (n=36) for normal placental cord insertion.

However, the difference were not statistically significant with p-value of 0.845

graph showing relationship between IDI(inter-delivery interval) and type of PCI

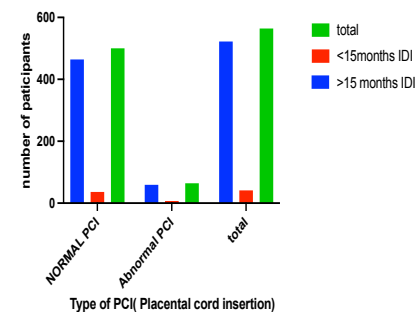


Figure 3: Digital Measurements of PCI



The digital images of the placentas were analysed digitally using ImageJ software version 1.50, freely downloaded from <http://rsb.info.nih.gov/ij>. Source: primary study¹

CONCLUSION & RECOMMENDATIONS

- A slightly higher rate of short inter-delivery intervals were found in velamentous cord insertion compared to normal placental cord insertion, however the difference were not statistically significance.
- This may be due to the small sample size of women with short inter-delivery intervals in the cohort.
- A larger study is needed to further examine the relationship between short IDI and abnormal PCI.

References:

1. Khadijah I. Ismail, et al, Abnormal Placental Cord Insertion and Adverse Pregnancy Outcomes: Results from a Prospective Cohort Study, Am J Perinatol 2017;34:1152-1159.



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