



**Original Research Paper** **Medical Science**

# Yolksac Measurements and Embryonic Heart Rate in Predicting first Trimester Pregnancy Outcome

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**ABSTRACT** Measurement of yolk sac, gestational sac, embryonic heart rate and crown rump length are useful in predicting first trimester pregnancy outcome. This is a prospective study conducted at GOVT RSRM LYING IN HOSPITAL attached to STANLEY MEDICAL COLLEGE, Chennai done in a total of 120 antenatal women belonging to first trimester. According to this study, chances of miscarriage in first trimester increases with increase in maternal age, consanguineous marriage ,gesational sac significantly correlates with first trimester pregnancy outcome. Yolksac diameter and embryonic heart rate also significantly correlates with first trimester pregnancy outcome.

**KEYWORDS**

**INTRODUCTION:**

Ultrasound is the primary imaging modality in obstetrics over the last 3 decades. The advent of high resolution trans vaginal ultrasound has revolutionised the understanding of patho physiology of early pregnancy failure. This prospective correlational study is conducted to assess the correlation of first trimester pregnancy outcome using yolksac measurement and embryonic heart rate.

**AIM:**

To assess the correlation of patient's first trimester outcome (Normal continuation of pregnancy/ miscarriage) with the yolk sac size and the embryonic heart rate at 6-12 weeks gestation.

- To evaluate the association of patient's age, consanguinity, menstrual history, parity and medical illness with first trimester outcome.
- To evaluate other sonographic parameters like crown rump length and mean sac diameter with first trimester outcome.

**METHODS:**

Study Design: PROSPECTIVE  
 Study Place: RSRM – lying in hospital attached to Stanley medical college, Chennai.  
 Study Sample:120 antenatal women belonging to first trimester.  
 Study period:December 2010 to November 2011

**METHODOLOGY:**

- A detailed history was elicited ,a thorough general, physical, systemic and obstetric check up was carried out.
- After obtaining informed consent women between 6-12 weeks of gestation were subjected to trans vaginal ultrasound.
- All examinations were performed using linear array real time 'B' scan with 7.5 MHz transducer
- Measurement of gestational sac diameter , yolk sac diameter , embryonic heart rate and crown rump length were made

**MEASUREMENT OF YOLKSAC:**

The yolk sac appers as a transionic mass within the gestational sac and it is measured by placing the calliper on the inner limits of longer diameter.

**MEASUREMENT OF EMBRYONIC HEART RATE:**

Heart rate measurement in the first trimester should be performed using turnover M-mode.

**MEASUREMENT OF CROWN RUMP LENGTH:**

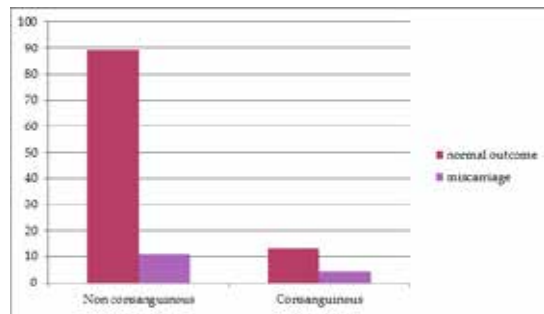
It is measured by obtaining a true, un flexed longitudinal section of the embryo or fetus with the end points of crown and rump clearly defined, and then placing the callipers on these desired endpoints.

**RESULTS AND OBSERVATIONS:**

**Among 84 primipara 9 had miscarriage and other 75 had normal pregnancy**

parity	normal	miscarriage	total
primi	75	9	84

**2.Consanguinity has highly significant correlation with pregnancy outcome(Pearson Chi-square test p=0.006)**



**3.Number of years since married (0.3-7 yrs)-mean 2.06yrs has significant correlation with pregnancy outcome(T test and p=0.025)**

	Preg-nancy outcome	N	mean	sd	Std error mean
No.of years married	normal	102	1.911	1.71	0.169
	miscarriage	18	2.917	1.85	0.437

**4.Medical illness complicating pregnancy**

	Medical illness	Without medical illness
Normal pregnancy	9	93
miscarriage	3	15
Total	12	108

Medical illness doesn't has correlation with pregnancy outcome (Pierson Chi square test p=0.306)

**5.Menstrual cycle:**

	Regular	Irregular
Normal outcome	92	10
Misscarriage	14	4
Total	106	14

Menstrual cycle doesnot correlate with pregnancy outcome(Chi square test  $p=0.13$ )

**6.Gestational Sac size(mean 32.12)**

Outcome	Mean GS mm
Normal pregnancy	33.10
Misscarriage	26.61

Gestational sac size hashighly significant correlation with the first trimester pregnancy outcome(T test  $P=0.007$ )

**7.Yolk sac size(mean 4.892mm)**

Yolksac size has significant correlation with first trimester pregnancy outcome(T-test  $p=0.002$ )

**8.Fetal Heart Rate(mean:154.62)**

The heart rate of the fetus predicted the first trimester pregnancy outcome significantly(T-test  $p=0.048$ )

**9.Gestational Age(mean 24.51mm)**

The gestational age at the time of scan predicted very significantly the first trimester pregnancy outcome(T test  $p<0.001$ )

**10.Crown Rump Length(mean 24.51mm)**

The CRL has significant predictive value in 1<sup>st</sup> trimester pregnancy outcome(T-test  $p=0.044$ )

**SUMMARY:**

- Maternal age correlates with pregnancy outcome.As the maternal age increases the chance of miscarriage increases
- Miscarriages are more common among patients with consanguineous marriage.
- The pregnancy outcome is not influenced by the medical illness in mother
- The gestational sac size significantly correlates with the first trimester pregnancy outcome
- Yolk sac diameter and embryonic heart rate in first trimester significantly correlates with the first trimester pregnancy outcome.

**CONCLUSION:**

Thus, the present study indicates that the yolk sac size and embryonic heart rate is reliable, cost effective and beneficial in predicting first trimester pregnancy outcome especially in patients who conceive following IVF.

**REFERENCES**

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