

Prospective study of the role of cardiac activity in cases of threatened abortion for reducing the chances of pregnancy loss.

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Summary:

This is a prospective study of 188 cases of threatened abortion who were studied for cardiac activity (CA) on endo-vaginal sonography (EVS) . It was found that amongst pregnancies less than 6 weeks and absence of CA, 66.7% spontaneously miscarried. The same was 100% in cases with pregnancies more than 6 wks. In presence of CA, 95.4% continued their pregnancies beyond 28 weeks. Presence of CA is more reliable an indicator of favorable outcome compared to absence of CA as an indicator of adverse outcome.

Introduction

Classical clinical definition of threatened abortion is any bleeding from or into the genital tract during pregnancy, before the age of viability. In any given case, the threat of losing such a pregnancy is about 50% (Levi et al 1996). It was not very long ago when obstetricians were admitting subjects with threatened abortion in the hospital for days on end. The rule at many institutions was to wait till the uterus grew in size clinically or the mother miscarried, whichever was earlier.. With the advent of USG and more so with Endo-Vaginal Sonography (EVS) such a practice has lost its value. One of the parameters that have remarkably reduced the treat of threatened abortion from 50% is fetal cardiac activity (CA). Kumar & Sridevi (1995) found this parameter to have a sensitivity and specificity well beyond 90%. In the pages to follow, a prospective study is being presented wherein the extent of reduction of the so called "threat" of threatened abortion with the help of the CA on EVS has been studied.

Subjects & Methods

This prospective study was carried out in Unit III of the Dept. of Obst. & Gynec., Medical College and S.S.G. Hospital, Baroda. The study period was of four years commencing from 1st July 94 to 30th June, 98. All cases of threatened abortion were enrolled in the study. After history taking and clinical examination, they were subjected to EVS. Specific parameter of CA was documented and the subjects followed up. There were occasions where EVS could not be done due to technical non-functioning of EVS probe.

Such cases were subjected to abdominal sonography. However, these cases were dropped from the study due to reasons of uniformity. Those cases who were lost to follow-up were also not included.

None of these cases of threatened abortion were admitted. Those who aborted were subjected to necessary intervention and others were followed up. USG was repeated as and when required. But for the present study only the first EVS report was considered for evaluation. These cases of threatened abortion who were expected to have an abortion "threat" of 50% at enrollment were re-evaluated on basis of CA. The threat perception of abortion was recalculated from the results obtained using standard statistical tests. These were counter checked on SPSS software.

RESULTS

In all, there were 274 subjects who could be enrolled in this study. Of these 88 were dropouts. These included subjects who did not come for follow up. It also included subjects in whom EVS could not be done when the probe had technical breakdowns.

TABLE-I
CA absent and out come.

Duration of preg. at enrollment	Aborted		Pregnancy cont.>28 wks.		Total
	No.	%	No.	%	
<6 wks.	06	66.7	03	33.3	09
>6 wks	<u>28</u>	100	<u>00</u>	00	<u>28</u>
Total	34		03		37

This table shows the outcome when CA was absent. It is found that when the pregnancy was more than 6 weeks and cardiac activity was absent, all cases aborted. However in early pregnancy of less than or equal to 6 wks. duration, only 66.7% aborted and 33.3% continued beyond 28 wks. The reasons for this are understandable and discussed later in the paper. Statistical indices are not employed in this table. This is due to reasons of technical limitations of such tests for this table.

TABLE-II
CA present: Outcome

Duration of preg. at enrollment	Total		Aborted		Continued Preg.	
	No.	%	No.	%	No.	%
<12wks.	94.	62.3	06	6.4	88	93.6
>12wks.	<u>57</u>	37.7	<u>01</u>	1.8	<u>56</u>	98.2
Total	151		7		144	

Chi Square=1.72~P>0.1-Not Significant.

As shown in Table II, presence of CA is a very important prognostic factor. Overall, of the 151 subjects with threatened abortion and CA being present, 144 (95.4%) continued pregnancy beyond 28 weeks. This becomes more obvious when pregnancy was greater than twelve weeks. 98.2% of these pregnancies continued beyond 28 weeks. Chi-square value was 1.72 which at df 1 gives P value > 0.1. Thus the difference was statistically not significant.

TABLE-III
CA Present in I-trimester and outcome

Duration of preg. at enrollment	Total		Aborted		Continued Preg. >28wks	
	No.	%	No.	%	No.	%
Early I trimester (Less than 10 wks.)	48		05	10.42	43	89.56
Late I trimester (Less than 10 wks.)	<u>46</u>		<u>01</u>	2.2	<u>45</u>	97.8
Total	94		06		88	

Chi Square value 2.63 P>0.05-Not Significant.

Table III shows the chances of continuing pregnancy when there is presence of CA in I- trimester. As it can be seen, when CA was present in early I-trimester, 89.56% continued pregnancy beyond the age of viability. However, in cases between 10-12 weeks, presence of CA showed a pregnancy continuance rate of 97.8%. Chi- square value of these observations come to 2.63 which at df 1 has P

value>0.05. This was statistically not significant.

TABLE-IV
Comparative Outcome when CA present and absent

	Aborted	Continued Preg. >28 wks.	Total
CA present	7	144	151
CA absent	34	3	37

Chi Square = 4.3 P value < 0.05-Significant

Table IV has been created for a vital statistical analysis. It is envisaged from this Table that the presence or the absence of CA is sensitive in predicting the outcome. On applying statistical tests it was found that presence of CA is significantly more sensitive in predicting a positive outcome. This difference was statistically significant (P<0.05) with Chi-square value being 4.3 at df 1.

DISCUSSION

On the face of it, the results expressed in these tables may appear as statistical exercises and maze of percentages with very little importance for an average clinician. However, if one goes into the details a bit more carefully, it throws up sound conclusions that can be of help to the clinician in dealing with the cases of threatened abortions.

Thirty four of the 37 subjects who had absence of CA aborted. But the 3 who did not are those who require to be discussed. Pennel et al (1991) showed that on EVS, normal embryos with CRL less than 9 mm may have sonographically absent CA. Levi et al, (1990) showed that it is not abnormal to find sonographically absent cardiac activity with CRL less than 4 to 5mm. The crux of the matter therefore is, pregnancies can be detected very early on EVS. However, CA may not still be seen so early. In pregnancies of more than 6 weeks duration absence of CA on EVS meant obvious missed abortion and understandable 100 % miscarriage rate. But a mere absence of CA in very early pregnancy (<6 wks) does not necessarily mean a bad outcome.

Even in presence of CA, it is suggested that when it is detected before 12 weeks, the chances of continuing pregnancy are a shade less than in later months of pregnancy. There seems to be some controversy here in the literature. Howe et al (1991)

demonstrated that upto 16% pregnancies with positive CA might be lost. Conversely, Simpson & Mills (1987) noted that only 2% of pregnancies with positives CA between 8 to 12 weeks might be lost. It is true that in the former study very early pregnancies were included and therefore the loss rate may be high. However in the present study, statistically, the rates of continuing pregnancy when CA was detected early, compared to late, were not significantly different. This is further elucidated when we specifically studied the outcome when CA was detected in very early cases of I-trimester bleeding and compared it with that in the later ones. There wasn't any statistically significant difference in the outcome.

One question that arose during the course of the study was which parameter is more reliable: Presence or absence of cardiac activity? This question has a complex answer. A clinician indeed likes to know as to when can he answer the query of his patient more reliably. Are the chances of continuing pregnancy more when CA is present? Or are the chances of loosing this pregnancy more when CA is absent? After much statistical and computerized analysis of the data of this study, it was found that the clinician is on a much stronger wicket when he finds CA present to tell that chances of good outcome are bright. On the other hand, when CA is absent chances of losing the pregnancy may not be so confidently predicted.

We now assign ourselves to the question that was asked at the commencement of this paper. To what extent can the chances of loosing a pregnancy in threatened abortion be reduced from 50%? The answer is- on EVS if one can detect CA, the chances of this pregnancy going beyond 28 wks. are enormously high at 95.4%. Thus, CA turns out be a very healthy parameter in reducing the chances of abortion in a case of threatened abortion.

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