EARLY PREGNANCY COMPLICATIONS IN THREE DIFFERENT CATEGORIES OF PATIENTS—A SONOGRAPHIC STUDY

By

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SUMMARY

Early pregnancy sonographic study was conducted in 169 subjects—81 conceiving after infertility treatment (47.93%), 72 having pathological symptoms or a high risk for pregnancy complications (42.60%), and 15 having no specific indication. The study confirms the need for sonography in very early pregnancy for all subjects conceiving following infertility treatment. Although the early pregnancy complications in infertile subjects (13.58%) are not significantly higher than those in general population. Two octopic gestations in the 81 subjects (2.47%) highlight the need for careful monitoring of infertile subjects as soon as they miss the periods.

Sonography has facilitated early diagnosis and prompt treatment of complications in the group having sonographic study on clinical indications. However, routine first trimester sonography without any indication, is of no value apart from diagnosing pregnancy.

Lastly excellent prognosis was observed in 96.52% of the 115 subjects who evidenced a normal gestational sac and a live fetus and first trimester sonography should be considered a tool for prognosticating the pregnancy outcome.

Introduction

With the advent of real-time gray scale ultarsonography, particularly by employing sector scanning, diagnosis of intra-uterine pregnancy has become a real possibility, and that too as early as 35 to 38 days of the last normal menstrual period (Decherney *et al.*, 1982, Romero *et al.*, 1984, Rajan and Rajan, 1986). Within a week to 10 days of imaging the gestational sac the fetal pole and fetal cardiac activity could be discerned with precision. These observations are of paramount importance in prognosticating the pregnancy outcome. A gestational sac with normal wall thickness, normal size and shape and containing a live fetus predicts, in the absence of sub-chorionic haematoma, an excellent prognosis for the pregnancy in more than 90% of situations (Joupilla *et al.*, 1980. and Rajan and Rajan, 1986).

Nonetheless, a routine ultrasonography in the first trimester unless indicated on clinical grounds, is not recommended for the following reasons: (i) pathological pregnancy evidences a

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clinical symptom, particularly vaginal bleeding in 97% of occasions (Rajan and Rajan, 1986); (ii) for dating the pregnancy, first trimester CRL measurement is inferior to early midtrimester BPD or femur length measurment (Warsof *et al.*, 1983) and (iii) information regarding fetal anomalies and placental position cannot be collected in the first trimester (Campbell, 1986).

Ultrasonographic examination is of course indicated in early pregnancy on clinical grounds (Warsof *et al.*, 1983). High risk for ectopic gestation, pregnancy bleeding, pain in abdomen, disproportionate uterine size and hyperemesis are the usual indications for first trimester sonographic study. Not only pathological pregnancy is diagnosed in 46% of subjects with early pregnancy bleeding, but also the different nature of pregnancy pathology discerned and proper treatment instituted (Rajan, and Rajan, 1986).

Pregnancies conceived following treatment for infertility have been considered at high risk for early pregnancy complications. Hence a routine early pregnancy scanning is recommended for such pregnancies, and that too as early as 7 days of the missed menstrual date (Rajan, 1986).

Study Design

The present study relates to first trimester ultrasonographic examination of 168 patients who could be divided into 3 different categories based on the indications for performing ultrasound scanning.

Group I: 'Indicated on Clinical Grounds': (Table I). This group includes 72 subjects undergoing scanning for various indications which are (in the order of frequency) vaginal bleeding, previous abortions, previous ectopic gestations, IUD users, pain in abdomen, hyperemesis, drug use and sysetmic infection (Table II).

TABLE II
Indications for Sonography on Clinical Grounds

Early pregnancy vaginal bleeding	27
Previous abortions	20
Previous ectopic gestation	5
Copper T insitu with pregnancy	4
Previous copper T users	4
Pain in abdomen	4
Hyperemesis	3
Bad obstetric history	2
Drug in early pregnancy	1
Disproportionate uterine size	1
Meningitis	1
Total	72

Group II: 'Infertile Subjects': There were 81 subjects who had achieved conception following treatment for inferti-

TABLE I
First Trimester Sonography

Group	Indications for sonography	No. of subjects	Percentage
I	Clinical grounds (pregnancy complaints or high risk for complications)	72	42.60
II	Pregnancies conceived following treatment for infertility (Endometriosis, tuboplasty, ovulation induction, male infertility, AID, and unexplained infertility)	81	47.93
III	Routine sonography (no complaints or indications)	15	8.87

lity, mainly surgical correction of endometriosis, uterotubal implantation, induction of ovulation, treatment of oligospermia, AID and unexplained infertility.

Group III: 'Routine Sonography': The sonographic study was performed in the first trimester as a routine measure, without a specific indication in 15 subjects.

The purpose of this study is to bring to light the following: (i) whether the incidence of early pregnancy complications is more in infertile subjects (ii) the nature of pregnancy disorders encountered (iii) benefits of early pregnancy scaning performed on clinical grounds and (iv) whether routine sonography for all subjects in the firs' trimester is meaningful.

Analysis

Among the 81 infertile subjects who had conceived following treatment for infertility 70 subjects (86.42%) evidenced an intra-uterine gestation, normal gestational sac and live fetus at sonography, and the remaining 11 subjects (13.58%) were identified to have abnormal pregnancies (Table III). The pregnancy abnormalities included blighted ovum (5), missed abortion (3), ectopic gestation (2) and multiple pregnancy (1). Of the 70 subjects with a live fetus, in whom the pregnancy outcome was adjudged to be excellent, 3 pregnancies were lost in the form of early mid-trimester abortion (2) and IUD (1), giving a pregnancy lose of 4.28%.

In the 'indicated' group of 72 subjects sonography evidenced normal pregnancy in 55 subjects (76.39%) and pathological pregnancy in the remaining 17 (23.61%) (Table IV). The pregnancy abnormalities included blighted ovum (7), vesicular mole (7), missed abortion

TABLE III
Pregnancies in Infertile Subjects
Total: 81

Nature of pregnancy	Number	Percentage
Healthy gestational sac with live fetus	70	86.42
Pathological pregnancies	11	13.58
Blighted ovum	5	6.18
Missed abortion	3	3.70
Ectopic gestation	2	2.47
Multiple pregnancy	1	1.23

TABLE IV
Sonography Indicated in First Trimester on Clinical Grounds
Total: 72

Nature of pregnancy	Number	Percentage
Healthy gestational sac with live fetus	55	76.39
Pathological pregnancies	17	23.61
Blighted ovum	7	9.72
Vesicular mole	7	9.72
Missed abortion	2	2.78
Ectopic gestation	1	1.39

TABLE V
Pregnancy Complications in Different Groups

Group	Number of patients	No. of pathological pregnancy	Percentage
I	72	17	23.61
II	81	11	13.58
III	15	nil	nil
Gestational Sac with live fetus	115	4	3.48

(2), and ectopic gestation (1). In this group, out of the 55 subjects with a live fetus one patient lost the pregnancy in the form of early abortion (1.82%).

The third group comprising of 15 subjects undergoing rountine early pregnancy sonography recorded no pregnancy abnormalities, and all subjects had normal intrauterine gestational sac which imaged a live fetus.

Discussion

The interpretation of this study is based on the concept that sonographic imaging of a normal, intra-uterine gestational sac with a live fetus inside, and unattended with a subchorionic haematoma ensures a successful pregnancy outcome. This is further evidenced from this study itself, from the number of pregnancies that have been lost among those certified normal at first trimester sonography. Of the 115 subjects imaging an intra-uterine, normal gestational sac and a live fetus in the first trimester only 4 pregnancies (3.48%) were lost in the course of the pregnancy. This indicates that the pregnancy outcome is excellent, as high as 96.52%, when first trimester sonographic study images a live fetus inside a normal, intra-uterine gestation sac.

It does not appear that the incidence of early pregnancy complications is more in the subjects treated for infertility as compared with that in the general population. Of the 81 subjects belonging to this group only 11 subjects had an abnormal pregnancy (13.58%). Nor the incidence of abortion and multiple pregnancy high, as could be seen from the incidence of 9.88% (8 in 81) and 1.23% (1 in 81) respectively. Admittedly, the incidence of ectopic pregnancy (tubal gestation) is 2 in 81 pregnancies (2.47%), and this is significantly higher when compared to the incidence in general population. One of the tubal gestations followed induction of ovulation by clomiphene and hCG, and the other occurred in a subject of unexplained infertility. Both were diagnosed in a stage of early tubal rupture by the clinical findings and sonographic appearance.

Nonetheless, from the foregoing analysis the role of routine sonography in infertile subjects achieving a conception is quite evident. It must also be stressed that the sonographic study is performed in these subjects as early as 35th day of last normal menstrual date (5 to 7 days of missed menstrual date). This is particularly so because of the significant incidence of ectopic gestation in infertile subjects.

As could be understood, pregnancy complications in subjects with early pregnancy abnormal symptoms indicating

sonographic study are high (23.61%). The pathological pregnancies included blighted ovum in 9.72%, vesicular mole in 9.72% and ectopic tubal gestation in 1.39%. However, none of the 15 subjects who had no clinical grounds for sonographic study and in whom a routine scanning was performed revealed a pregnancy abnormality.

This study, while highlighting the definite need for sonographic study in subjects with early pregnancy complaints or high risk for complications, also makes it evident that routine sonography in the first trimester, in the absence of any clinical grounds, is noncontributory. Hence, a routine sonography in the first trimester is not recommended except for diagnosis of pregnancy. Moreover, our earlier study (Rajan and Rajan, 1986) has clearly proved that a pathological pregnancy in the first trimester is invariably attended with clinical symptoms, particularly vaginal bleeding, in 97% of occasions. Thus any abnormal symptom or sign in early pregnancy wil be a strong indication for sonographic evaluation.

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