DISCUSSION
Measurement of amniotic fluid volume assists the obstetrician to assess the risk of the fetus because amniotic fluid volume has been proved to be an indirect measure of feto-placental function for example, hypoxemia of fetal lungs has been shown to decrease renal perfusion which will result in reduced urine output and reduction of amniotic fluid volume.

Historically amniotic fluid has been measured initially using amniocentesis and dye dilution techniques. But currently ultrasonography has been proved to be a safe and noninvasive method of amniotic fluid volume estimation. In this study, amniotic fluid index method was used to detect amniotic fluid volume. Amniotic fluid index was found to be reliable method as 91.4% of cases were corresponding with the liquor drained during labour.

MEAN AMNIOTIC FLUID INDEX

In normal term pregnancy group of this study mean amniotic fluid index was 12.6±3.6 (Table I) in comparison to 12.9±4.6 calculated by Phelan et al(1987) and 11.5±4.7 calculated by Moore (1990). Thus our study findings are corresponding with the previous ones. Mean amniotic fluid index in post dated pregnancy was
7.6 (range 3.0-13.0) in our study. Previously Moore (1990) reported mean AFI in post dated pregnancy as 10.8 cm (range 6.7-17.4 cm) and Grubb et al (1992) reported mean AFI as 9.1 cm (range 4.1-18.7). Phelan (1987) and Moore (1990) reported the decrease in amniotic fluid volume after completion of 37 gestational weeks. Moore reported 12% decrease per week in the amniotic fluid index in post dated period. In our study there was significant decrease in AFV in post dated pregnancy with 10% decline per week (Table IX).

OLIGOAMNIOS

Rutherford and Phelan et al (1987) gave criteria of AFI less than 5 cm as oligohydroamnios. In their study of 330 cases 27 had oligoamnios (8%). In our study incidence of oligoamnios was 21.4%(15 out of 70). In this group we also included the cases with intrauterine death. Higher rate of oligoamnios in this study was due to more cases of postdated pregnancy (table II). Positive predictive value for oligoamnios was calculated as 93% but the accuracy and specificity was only 80%. Same predictive value was found in a study of AFI in Manipal (Pratak Kumar et al, 1991).

OLIGOAMNIOS AND FETAL DISTRESS (TABLE IV)

Rutherford et al (1987) studied the incidence of fetal distress in oligoamnios (by AFI method). It
was 56% in comparison to 21% among normal group. In our study rate of fetal distress was 89.9% (excluding IUD cases) in oligoamnios group, and 21.8% among normal group. Thus there is significant increase in rate of foetal distress with lesser amniotic fluid index. Sarno (1990) also described the correlation between oligoamnios abnormal fetal heart rate. He reported that variable deceleration in early labour were associated with oligoamnios in 43.8% of patients. Robson (1992) also reported higher incidence of fetal heart rate abnormalities during labour with low amniotic fluid index (64% : 20%). Thus oligohydramnios diagnosed in antenatal period predicts the risk of neonatal compromises in subsequent labour and adverse outcomes.

**AFI AND MODE OF DELIVERY (TABLE V)**

In present study caesarian section incidence was 21.8% in normal AFI group and 60% among oligoamnios. Elective caesarian sections were excluded from the calculation. Rutherford et al (1987) reported 44.4% incidence of caesarian section in oligoamnios and 26.7% in normal group. Grubb et al (1992) also reported 64% incidence of caesarian section in oligoamnios group and 21% in normal group. Thus we concluded that need
for operative interventions is increased when oligo-
amnios is present. In intrapartum study of AFI, 
Sarno (1990) found significant increase in caesarian 
section for foetal distress in oligoamnios (11.9% Vs 
2.5% in normal group).

**AMNIOTIC FLUID INDEX AND BIRTH ASPHYXIA (TABLE VI)**

Rutherford et al (1987) studied the incidence 
of 29.6% of birth asphyxia in oligoamnios as compared 
to 12.87% in normal volume. Sarno (1990) reported 
birth asphyxia in oligoamnios as 26.2% and in normal 
AFI as 12.7%. In our study birth asphyxia was present 
in 10.9% cases of normal group and 33.3% cases of 
oligoamnios group. Thus amniotic fluid volume is 
inversely proportional to birth asphyxia (APGAR Score 
/7 at 1 min) and this is a effective discriminatory 
test to be used in pregnancy evaluation in relation to 
fetal outcome.

There was increased incidence of perinatal 
mortality and morbidity in oligoamnios group (46.6%) 
and 33%) as compared to normal group (1.8% and 14.5%). 
Phelan and Rutherford (1987), Sarno (1990) and Shmoy 
(1990) reported increased incidence of perinatal 
morbidity in oligoamnios cases. Thus amniotic fluid 
index is an appropriate predictor of perinatal outcome 
(Table VII).
AMNIOTIC FLUID INDEX AND IUGR

Incidence of IUGR was very high among oligohydroamnios cases (33.3%) as compared to those with normal liquor (10.9%). Manning et al (1981) found that qualitative AFV less than 1 cm was associated with IUGR fetuses in 89.9% cases. This very high incidence of IUGR in Manning et al (1981) study was due to his restrictive criteria of 1 cm largest fluid pocket. Chamberlain et al (1984) reported that in cases with AFV pocket ≤2 cm, incidence of IUGR was 38.6%. Thus there is a definite direct relationship between IUGR and oligoamnios. But Hadlock (1984) reported that semiquantitative estimation of amniotic fluid as a sole criteria for prediction of IUGR is associated with 96% falsely negative tests. In our study 45.5% IUGR cases reported oligoamnios and 54.5% normal AFV. Thus oligoamnios as a sole criteria for prediction of IUGR is not suggested according to present study. Other ultrasound measurements should also be judged for better diagnosis (Table VIII).

AMNIOTIC FLUID INDEX AND POST DATED PREGNANCY

With the post term pregnancy, amniotic fluid index decreases and decreases in AFV is associated with increased fetal risk. In present study advanced
post maturity was found in 8 foetuses (total post dated pregnancy were 21). Thus the incidence of advanced post maturity was 38.1%. Moya F (1985) reported the incidence of advanced post maturity among post dated pregnancy as 12.9%.

In advanced postmaturity cases placental grading was also done which were II and III grade with similar frequency in our study. But the amniotic fluid volume was recorded in lower range amongst them. Thus oligohydroamnios is a better predictor of post-maturity than the placental grading. Same results were evaluated by Moya F (1985).

Oligoamnios has been recognised as an abnormal sign in biophysical profile. This predicts poor fetal outcome and usually associated with IUGR and post dated pregnancy.