

## The Value of Reporting Decreased or Absent Fetal Movements by Mothers in Predicting the Pregnancy Outcome

Dear Editor,

Maternal complaint of decreased fetal movement is one of the alarms, which its delayed reporting could be associated with adverse pregnancy outcome.<sup>1</sup> Controlled trials have shown that fetal movement counting by the mother is the only promising antepartum test to reduce the mortality.<sup>2</sup> Reduction of fetal movement could be a marker of poor conditions like fetal hypoxia, stillbirth and fetal growth restriction.<sup>3</sup> The aim of this study was to examine whether decreased fetal movement after lateral lie down for an hour could be a valuable tool for revealing fetal health status.

We conducted a cross sectional study recruiting 200 pregnant women, who were complaining of decreased fetal movement during three days prior to admission to Hazrate-e Zeinab Obstetrics Clinic, and Shahid Mostapha Khomeini and Imam Khomeini hospitals, Tehran, Iran from 2007 to 2009. Women with a term pregnancy (more than 37 weeks), single fetus, and decreased fetal movement to less than four per hour during the three days prior to the admission were included in the study. Those with concurrent obstetrics complications such as preeclampsia, severe placenta abruption, placenta previa, and biophysical profile score equal to one were excluded from the study. Variables such as fetal movement count after mother lateral lying for one hour, birth weight, activity, pulse, grimace, appearance, and respiration (APGAR) score at the first minute, type of delivery, maternal age, gravidity, and biophysical profile were assessed by the same team via a checklist to predict the outcome of pregnancy. More advanced cares such as biophysical profile were provided, and follow-ups were considered until the time of delivery. Data were analyzed by Statistical Package for Social Sciences (SPSS version 17) using Chi square and unpaired t test, and a P value of <0.05 was considered statistically significant.

The age of the participants was 27.73±3.85 years (range: 17-43 years). Fifty eight cases (29%) mentioned absent fetal movement, and 142 (71%) reported a decreased fetal movement. After the mothers lied laterally for one hour, 78 cases (39%) reported no move, 107 (53.5%) reported 1-4 moves, and 15 (7.5%) reported more than 4 moves. There was no significant difference in biophysical profile score or first minute APGAR score from mothers with normal and decreased fetal movement during one hour of lateral lying. Out of 142 cases with decreased fetal movement, 52 (36.6%) had abnormal biophysical profile score (<7) and abnormal first minute APGAR score (<7). Finally, decreased fetal movement after one hour lateral lying showed a sensitivity of 92.9% (95% CI: 81.9-97.7%), a specificity of 7.6% (95% CI: 4.1-13.6%), a positive predictive value of 28.1% (95% CI: 21.9-35.3%), a negative predictive value of 73.3% (95% CI: 64.8-81.1%), and an accuracy of 31.5% to predict pregnancy outcomes (biophysical profile score and first minute's APGAR score). Moreover, the prevalence of abnormal first minute APGAR score in neonates from mothers with absence of fetal movement was significantly (P=0.03) more than that in neonates from mothers with decreased fetal movement.

In a study on 200 pregnant women, Zare and colleagues reported that in cases of decreased fetal movement neonatal APGAR score was less than that in others.<sup>4</sup> However, Stewart et al showed that in pregnancies with moderate risk, the number of fetal movement could not be a prognostic factor for pregnancy outcomes.<sup>5</sup> The difference between the findings of the present study with those of such studies might be due to difference in case matching by risk in pregnancy.

Our study showed that among biophysical profile components, only fetal movement had significant statistical correlation with the extent of decrease of fetal movement (P<0.001). However, non-stress test alone is a simple and useful test for fetal health assessment, but there is no significant correlation between fetal heart rate and fetal movement.

The present study showed that there was not significant correlation between the extent of fetal movement decrease and the type of delivery. However, there was a significant correlation between these two variables after fetal movement count during one hour lateral lie. Moreover, the frequency of cesarean section was more in group with absent fetal movement (P=0.039). Similar to the finding by Zare and colleagues, the frequency of cesarean section in mothers with decreased fetal movement

was more than that in the control group (۴۲% versus ۱۵%).<sup>۴</sup> There was significant statistical correlation between the fetal movement and their birth weight. In other words, neonates of mothers with absent fetal movement had lower birth weights ( $P=0.014$ ).

Our findings might indicate that relative to biophysical profile and first minute APGAR score, the decrease of fetal movement after lateral lying for an hour might be a valuable way to reveal fetal health status. Moreover, if there is a decreased fetal movement, one fetal health diagnostic test such as sonography, non-stress test, or biophysical profile should be used, and if needed, interventional procedures should be performed.

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