FETAL MOVEMENTS MONITORING AS A STILL VALID FETAL WELL-BEING ASSESSMENT METHOD
Kinga Wdowiarz¹, Olga Padala¹, Monika Majcher¹, Anna Orzeł², Anna Semczuk-Sikora M.D. and Ph.D.²
1. Student Scientific Association affiliated at the Department of Obstetrics and Pathology of the Pregnancy, Medical University of Lublin, Poland
2. Department of Obstetrics and Pathology of the Pregnancy, Medical University of Lublin, Poland

#Corresponding author: Kinga Wdowiarz, e-mail: kingawdowiarz@gmail.com, Student Scientific Association affiliated at the Department of Obstetrics and Pathology of the Pregnancy, Medical University of Lublin, Staszica Street 16, 20-081 Lublin, Poland, phone number +48 602117894

RUNNING TITLE Fetal movements monitoring
KEYWORDS fetal movements, pregnancy, education
WORD COUNT 2542
CONFLICT OF INTERESTS no conflicts of interest

ABSTRACT
Fetal movement observation by pregnant women is the oldest and the cheapest way to assess fetal well-being. There is a scientifically confirmed correlation between weaker perception of the movements and increased risk of intrauterine fetal death. The investigated group comprised 154 patients from the Clinic of Obstetrics and Pathology of Pregnancy at the Medical University of Lublin, aged 17-45. Data were collected through the author’s questionnaire. Statistical analysis was performed in SPSS Statistics and Chi² Test. In the investigated group 70.8% of women would count fetal movements every day and 13% were not doing this at all. Whereas 72% of women declare they have been informed by a doctor about the necessity to count fetal movements, 51.3% did not receive any materials that could facilitate the assessment of the physical activity of the fetus. Almost 50% of the women did not know how fetal movements change throughout pregnancy. Nonetheless, 45.5% of the patients correctly listed the indications for an urgent consultation in a health centre. The women were asked to state if the following sentence was correct: „a decreased number of fetal movements may indicate a fetal disease”. Over half (59.1%) of the respondents answered the sentence was true. Women who obtained higher education gave the correct answer more frequently than those with secondary education. Patient awareness concerning monitoring fetal movements seems to be insufficient. There is a need for medical staff to pay more attention to education of pregnant women on the benefits resulting from monitoring the physical activity of the fetus.
BACKGROUND

Fetal movement counting is the oldest, as well as the cheapest method of assessment of fetal well-being. On the grounds of everyday observations, it is possible to conclude that nervous and osteomuscular systems develop correctly. There is a scientifically proven correlation between weaker fetal movement perception and increased risk of intrauterine fetal death. Decreased ac-tivity of fetus may indicate hypoxia and acidosis [2]. The majority of women with a history of intrauterine death of fetus, reported decreased fetal activity. A woman is able to prevent dangerous complications, if she is aware that decreased fetal movements count or sudden change of their character are significant clinical symptoms. According to the current standards of medical approach to providing health services in the range of perinatal care, it is recommended for pregnant women to assess the fetal activity from the 33rd week of gesta-tional age. Certain authors suggest to begin observations as early as in 24th to 26th weeks of ges-tational age, however the Polish Gynecological Society recommends motherly fetal movements counting starting not earlier than in III trimester [4].

Normal fetal movement perception

Pregnant women start to sense fetal movements around 18-20 weeks of gestational age. Multi-gravidas usually report first fetal movements earlier than primiparas. The movements can occur in various combinations and are widely described as kicks, fibrillations, twists or relocations. Movements can be observed in ultrasound examination in the beginning of 7th week of pregnancy [5]. It is possible to observe the general movements, isolated movements of upper or lower limbs, hiccup, stretching, respiratory movements, mandibular opening, bowing and raising head and pick-ups [6]. The intensity of those movements constantly advances until 32nd week of gestational age and from then onwards remains at the same level. Before delivery, women usually sense 16-45 movements per hour and intervals between consecutive movements do not exceed 75 minutes. Movements are not sensed in 20-40 minutes periods of fetal sleep, both during day and night. It is essential to remember that those fetal sleep periods should not last longer than 1.5 hours.

Factors influencing the maternal perception of fetal movements

Perception of fetal movements remains under the influence of certain factors. Higher intensity of the described phenomenon is recorded between afternoon and evening hours, especially be-tween 21:00 and 1.00 [7]. Not without significance remains the factor of patient’s positions, while lying down, higher activity of fetus has been noted, comparing to standing or sitting position. Certain substances, such as benzodiazepines, nifedipine, magnesium, opioids or alcohol may lead to temporary fetal activity decrease. Fetal movements might be less perceptible in tobacco products users. There are scientific studies [8] suggesting placental placement on the anterior uterine wall as one of the factors of decreased fetal movement perception before the beginning of 28th gestational week. Corticosteroids, used in order to accelerate fetal lungs development, at the same time might cause diminution in fetal activity during 2 days after their administration. Chronic fetal stress caused by preeclampsia and gestational hypertension, major con-genital malformations, polyhydramnios and from the mother’s side: obesity, metabolic syndrome, autoimmune diseases such as thyroiditis and anemia can also be included to the group of possible decreased fetal movement perception factors [10,11]. Interestingly, it is not clear if fetal presentation in uterus anywise affects fetal movement perception [3]. Contrary to the common opinion, the increase in blood glucose level does not result in heightened fetal activity [10]. Re-porting sudden, increased fetal movement by the mother is significant as such a condition may indicate placental abruption or blood flow disorder in cord vessels.

Criteria indicating abnormal fetal movements

In the course of research on the meaning of mother’s fetal movement assessment certain methods have been developed. Sadovsky and coworkers recommend fetal movement assessment in 30-60 minute intervals, 2-3 times per week. The authors suggest less than 3 moves during 1 hour or lack of activity in 12 hours as an alarming symptom [12]. „Cardiff — count to 10” method is based on noting the time of 10 fetal movements. Its authors recommend medical intervention in case of perception of less than 10 movements per 2 hours. Subjectively sensed, sudden change of movement character or intensity should be considered disturbing as well. Further diagnostics is advised to women that until 24th week of gestational age did not feel any fetal activity [10].

Proceeding in diagnosis of abnormal fetal movement

In case of the occurrence of one of the above mentioned criteria, depending on gestational age it is recommended to perform a series of diagnostic procedures, assessing the well-being of the fetus. In a situation involving a patient before the beginning of 28th week of pregnancy, it is necessary to evaluate fetal heart rate using a handheld doppler detector. In the case of a more advanced pregnancy, detailed history taking is crucial. If the patient’s history confirms decreased number of fetal movements, fetal heart rate should also be checked. In case of lack of heartbeat, the patient should undergo ultrasound examination without further delay in order to confirm or rule out intrauterine death. If fetal heart rate is present, cardiotocography is recommended. Further proceedings depend on examination results, patient’s condition and medical history. If information from the patient does not confirm decrease of fetal movements, it is recommended to suggest her fetal heart rate detection, routine obstetric examination and provide the recommendations for potential recurring decrease of movement perception episodes [3].

MATERIAL AND METHODS

Research group included 154 patients from the Department of Obstetrics and Pathology of Pregnancy at the Medical University of Lublin. Patients’ age varied between 17 and 45 years (average: 30.3), hospitalized between May 2016 and January 2017. An original questionnaire was used, which consisted of 36 questions, including 26 single choice, 2 multiple choice
and 8 open answer questions. In order to detect the correlation between analyzed variables, the Chi square test has been performed. Level of significance p<0.05 was adopted. Statistical analysis was performed using SPSS program.

RESULTS

First perceived fetal movements

All of the respondents admitted to sense fetal movements. Averagely, the patients felt first fetal movements in 19th gestational week, at the earliest in 14th and at the latest in 28th week of pregnancy. Patients in their third or consecutive pregnancy were the first to sense the movements (17.4 weeks), then patients in their second pregnancy (18.2 weeks) and the last to sense fetal movements were patients in their first pregnancy (19.7 weeks). BMI turned out to be another factor affecting the time of the first onset of fetal movement perception. In underweight patients the average was 18.67 weeks, in patients with normal body weight 18.75 and in overweight patients or patients with obesity 18.89.

Monitoring of fetal movements by patients

Most of the respondents (83.1%) answered affirmatively to the question about simplicity of fetal movements recognition, 13% answered „rather yes” and 3.9% „no”. While 70.8% of the patients admitted to count fetal movements every day, nearly one in ten counted fetal movements a few times a day and the rest of respondents did it less often (7.1%) or not at all (13%). Almost 70% of patients noted over 20 movements per day, 13% noted from 15 to 20 movements per day, 12% from 10 to 15 and less than 5% noted under 10 movements.

Doctor — patient transfer of information on the subject of fetal movements monitoring

All of the respondents confirmed the significance of counting fetal movements. As many as 72% of them were informed by their doctor, 13% by the midwife. During every doctor’s appointment 87.6% of the patients were asked about fetal movements, 10.4% of them were asked sometimes and 2% not at all. More than half of the respondents (51.3%) did not receive any materials informing about fetal movements observation, 26.6% received those materials as well as the sheet to note movements, 20.5% of them received only the sheet, 1.3% only information material and45.5% of the patients were provided with information about „count to 10” method. Nearly 30% claimed they were not instructed by their doctor how to count fetal movements, almost 50% respondents were not informed how the fetal activity changes throughout the pregnancy. A few patients (5.2%) were instructed to start monitoring fetal movements from 35th week of pregnancy. Moreover, 11.7% did not receive any answer from the doctor to questions they had during appointments. As the reason for such a situation, patients pointed to embarrassment caused by asking questions, reluctance or doctor’s lack of time and rush.

Other sources of knowledge

Four most popular among the patients sources of knowledge on the subject of fetal movements monitoring and widely understood physiology of pregnancy are; the internet (87%), books (63.6%), conversations with friends (59.7%) and antenatal classes (40.9%), as 54.5% of respondents found information on fetal movement monitoring in the above mentioned sources.

Level of knowledge on the subject of fetal movements monitoring

The question concerning knowledge on any fetal movements monitoring methods was answered affirmatively by 66.9% of the patients. In the open answer question concerning short description of the chosen method, there were 55.2% correct answers, 12.3% incorrect answers and additionally 32.5% of respondents left this question without any answer. Another open answer question concerned the symptoms that would possibly urge the patient to visit a medical facility. In that case 45.5% of respondents delivered fairly correct answers. The respondents were asked to evaluate the veracity of the following sentences:

- "Decreased number of fetal movements may indicate fetal disease" (correct answers - true 59.1%), "It is considered as nor-nal not to sense fetal movements shortly before delivery time" (correct answer - false 91.6%). "It is normal not to feel fetal movements every following day" (correct answers - false 94.2%).

Statistically significant correlation between patients' education and the frequency of answering correctly has been noted. Subjects with higher education answered correctly more frequently than subjects with secondary or primary education (p<0.05). No statistically significant correlation has been registered between correct answers rate and the age of the patient, or the number of prevalent pregnancies.

DISCUSSION

Fetal movement monitoring is a relatively simple and cheap method. To prove it, 96.1% of our respondents without any difficulties recognize fetal movements. Nevertheless, the knowledge of our respondents does not seem to be sufficient. Unfortunately, near half of interviewees cannot correctly describe fetal monitoring method. As many as 41.9% women provided a false answer to the question concerning decreased fetal movements count as a clinical sign of fetal disease. The fact that 54.4% of the patients could not assess what type of change of fetal movement character is an alarming one appears vaguely optimistic. Lack of knowledge of pregnant women in the matter of fetal movements counting can be considered the result of inadequate access to information about fetal movement changes during the time of pregnancy, which applied to over half of respondents and over 30% of them were not informed about how to count those movements. The results suggest the insufficiency in education levels provided by health workers to the pregnant women. Canadian Dalhousie University research proves the existence of this phenomenon. The authors report: „Women who recall receiving information regarding fetal movement from a health care provider are more likely to know how to detect and react to a decrease in fetal movement” [1]. It therefore follows that there still remains much to be
done in the matter of women’s fetal movement counting education.

CONCLUSION

Nevertheless, the fact that fetal movements monitoring is a simple and easily accessible diagnostic method, not all pregnant women use it. This effect may be due to the lack of knowledge, which should be provided by the doctor or the midwife. Whereas it is necessary for the health care providers to pay particular attention to patients’ education in the area of the benefits of fetal movement monitoring.

CITE THIS AS

REFERENCES