

Oral glucose tolerance test in pregnant women and factors affecting their decisions

Gebelerde oral glukoz tolerans testine bakış ve etkileyen faktörler

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SUMMARY

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Objective: In this study, we aimed to investigate the demographic findings and the reasons for not accepting the oral glucose tolerance test during pregnancy.

Method: This study was carried out on the pregnant women in Nigde University Obstetrics and Gynecology Clinic. The study was performed with pregnant women to whom OGTT was recommended in the 24-28 gestational weeks, but who did not accept the test. Pregnant women were asked questionnaires prepared by our clinic and the answers were recorded.

Frequency, percentage, mean, standard deviation, Kruskal-wallis and Mann-Whitney U test and Spearman correlation analysis were used for data analysis.

Results: A total of 299 pregnant women were included in the study. Mean age of the pregnant women was 26.88 ± 5.59 years. Mean gestational week was 25.4 ± 3.12 . When the reasons of not having OGTT in pregnant women who had OGTT in their previous pregnancies are examined, 42.9% thought the test was unnecessary, 4.3% thought it was difficult to perform the test, 24.5% said they read news about the harmful effects of the test in the press, 12.3% said because the doctor did not recommend the test, 12.3% said they did not have regular follow-up, 3.7% stated that they did not take the test because they were not informed sufficiently about the test.

Conclusions: In conclusion, this study is an important study in terms of revealing the prejudices of pregnant women who applied to our clinic in Nigde province, even though there are few subjects.

Keywords: Pregnancy, gestational diabetes, oral glucose tolerance test

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ÖZET

Amaç: Bu çalışmamız da gebelikte glukoz yükleme testini kabul etmeyen olguların demografik bulguları ile testi kabul etmeme nedenlerinin incelenmesi amaçlanmıştır.

Yöntem: Bu çalışma Niğde Üniversitesi Kadın Hastalıkları ve Doğum Polikliniğine başvuran, 24-28. gebelik haftalarında OGTT önerilen, ancak testi kabul etmeyen gebelerle yapıldı. Gebelere kliniğimiz tarafından oluşturulan anket sorular soruldu ve cevaplar kaydedildi. Verilerin analizinde frekans, yüzde, ortalama, standart sapma, Kruskal-wallis ve Mann-Whitney U testi ve Spearman korelasyon analizi kullanıldı.

Bulgular: Çalışmaya toplam 299 gebe dahil edildi. Gebelerin yaş ortalaması 26.88 ± 5.59 idi. Ortalama gebelik haftası 25.4 ± 3.12 idi. Önce ki gebeliklerinde OGTT yaptıran gebelerin şimdi ki gebeliğinde OGTT yaptırmama nedenleri incelendiğinde %42.9'si testin gereksiz olduğunu düşündüğü için, %4.3'ü testin uygulanmasının zor olduğunu düşündüğü için, %24.5'i basın da testin zararlı olduğu söylendiği için, %12.3'ü doktoru tarafından testin önerilmediği için, %12.3 düzenli takiplerinin yaptırmadığı için, %3.7 test hakkında yeterince bilgilendirilmediği için testi yaptırmadığını ifade etti.

Sonuç: Sonuç olarak bu çalışma az sayıda denekle olsa da Niğde ilimiz de kliniğimize başvuran gebelerin şeker yüklemeye testine bakışlarını ve ön yargılarını ortaya koymasından dolayı önemli bir çalışmadır.

Anahtar sözcükler: Gebelik, gestasyonel diyabet; şeker yüklemeye testi

INTRODUCTION

Gestational diabetes mellitus (GDM) is the most common endocrinopathy during pregnancy and affects approximately 6-7% of pregnant women. In pregnant women without risk factors, GDM can be diagnosed with oral glucose tolerance test at 24-28 weeks of gestation and fetal, neonatal and maternal complications (congenital abnormalities, macrosomia, perinatal death, birth trauma, etc.) that may develop due to GDM can be prevented¹. Women diagnosed with GDM are willing to have treatment during pregnancy, but do not show enough interest in pregnancy glucose tolerance testing^{2,3}. Patients referred to the oral glucose tolerance test (OGTT), especially those in the high socioeconomic category, have a higher acceptance rate; however, this rate is lower in patients with low socio-economic status⁴. However, in recent years, there have been reports in various media outlets that OGTT during pregnancy may be harmful to the fetus. It is noteworthy that the desire for the glucose load test during pregnancy decreased regardless of socioeconomic status and that pregnant women were skeptical about this test because of these media news. The awareness of the patients about the information they obtain through the media is very high. In particular, statements made by famous people may affect their health decisions positively or negatively. It is possible that this situation will sometimes cause trust problems between obstetricians and mothers and at the same time it may endanger the pregnancy process. In this study, we aimed to investigate the reasons for refusal of oral glucose tolerance test during pregnancy.

MATERIAL AND METHODS

This study was carried out in Niğde University Obstetrics and Gynecology Clinic with 299 pregnant patients. Ethical approval of the study was obtained from the Ethics Committee of Niğde University (Ethics decision no:2019/25) and written permission was obtained from the institution where the study would be conducted. Pregnants participating in the study were informed about the purpose of the study and their written

informed consent was obtained. Pregnant women were asked the questions, created by our clinic, by a person (Emre Destegül) in a face-to-face setting; including obstetric history, gestational week, working status, education level, type of health insurance, history of gestational diabetes mellitus, history of macrosomic fetus, previous history of having OGTT and the reasons for not having OGTT in her current pregnancy (a-I do not believe that a-test is necessary, b- I do not want to have it because it is difficult, c-I do not want to do because some media organ says that the test (sugar) may harm my baby, d-the test was not recommended by my doctor, e-I could not have my pregnancy follow-ups regularly, f-I was not informed enough by my doctor about the test), and the answers were recorded. In our clinic, single-step 75 g OGTT is recommended for pregnant women. Patients with a history of DM before pregnancy were excluded from the study.

Statistical Analysis

SPSS (version 24.0) package program was used for the evaluation of data. Frequency, percentage, mean, standard deviation, Kruskal-wallis and Mann-Whitney U test and Spearman correlation analysis were used for data analysis. Significance level was accepted as $p < 0.05$.

RESULTS

A total of 299 pregnant women were included in the study. Mean age of the pregnant women was 26.88 ± 5.59 years. The mean gestational week was 25.4 ± 3.12 . The demographic findings of the patients are summarized in Table 1. Table 2 shows the reasons of patients who did not want to have test. And the most common reason was found to be the belief that the test was unnecessary. OGTT rate was 45.4% in the cases who were included in the study. When the reasons of not having OGTT in pregnant women who had OGTT in their previous pregnancies are examined 42.9% thought the test was unnecessary, 4.3% thought it was difficult to perform the test, 24.5% said they read news about the harmful effects of the test in the press, 12.3% refused to have test because the doctor did not recommend it, 12.3% did not have regular follow-

up, 3.7% stated that they did not take the test because they were not informed sufficiently about the test. Comparison of pregnant women who had OGTT and who did not have OGTT in their previous pregnancy showed, patients who had OGTT in previous pregnancies were more lean not to take test the in the current pregnancy because of it is difficult to perform and this difference was statistically significant ($p=0.008$). When the educational status of the cases and the reasons for not having OGTT in their current pregnancies were examined, it was seen that non-university graduates thought that the test was difficult to be performed. This difference was statistically significant when compared with pregnant women who graduated from university ($p=0.25$). Among the pregnant women who graduated from university most common reason for refusing the OGTT was the news in

media which were said the test was harmful (23.1%). However, this situation was not statistically significant when compared with non-university graduates. When the pregnant women with and without GDM history were compared in terms of the reasons for not having OGTT in their current pregnancy, the rate of not taking the test was found statistically significant because they thought the test was unnecessary ($p= 0.050$). 43.1% of those without GDM history stated that they thought the test was unnecessary. The most common reason (40%) for rejecting OGTT in pregnant women with a history of GDM was the various media news which were reported OGTT was harmful. When this situation was compared with non-GDM pregnant women, the difference was found to be statistically significant. ($p=0.051$).

Table 1: Demographic Findings of Patients.

(N= 299)	n	%
Age	26.88±5.59	
Gestational Weeks	25.4±3.12	
Parity		
Primipar	82	27.4
Multipar	217	72.6
BMI	28.14±4.19	
Previous Birth Method		
Vaginal Birth	218	72.9
Cesarean Section	81	27.1
Previous GDM History	15	5
DM Before Pregnancy	5	1.67
DM History in family	53	17.7
Health Insurance Status		
Yes	286	95.6
No	13	4.4
Education Status		
Illiterate	7	2.34
Primary School Graduate	59	19.7
Secondary School Graduate	96	32.1
High School Graduate	72	24
University Graduate	65	21.7
OGTT History in previous Pregnancy		
Yes	136	45.4
No	163	54.6

BMI: Body Mass Index, **GDM:** Gestational Diabetes Mellitus, **DM:** Diabetes Mellitus, **OGTT:** Oral Glucose Tolerance Test

Table 2: Patients' reasons for rejecting to perform OGTT

Reason (N=299)	n	%
Because it is unnecessary	122	40.8
Because it is difficult to performed	25	8.4
Because it was said harmful by way of media	62	20.7
Because it was not recommended by my doctor	39	13
Because I could not make my follow up regularly	41	13.7
Because I was not informed sufficiently	10	3.3

DISCUSSION

The most common reason for refusing to perform the OGTT in our study was found as patients belief that test is unnecessary. Pregnant women who had OGTT in their previous pregnancies were found to think that the most common reason for not having OGTT in their current pregnancy (43%) was that the test was unnecessary. The most common reason for rejecting OGTT in pregnant women with a history of GDM was that the test was reported to be harmful in various media organs. When the pregnant women with and without GDM history were compared in terms of the reasons for not having OGTT in their current pregnancy, the rate of not taking the test was found to be statistically significant because they thought the test was unnecessary. This may be due to patients' lack of knowledge about GDM related pregnancy complications or patients' did not face any GDM related pregnancy complications during previous pregnancies. Because patients with a history of GDM are seven times more likely to develop type 2 diabetes than women without a history of GDM⁵. These patients also carry the risk of early diabetes mellitus in subsequent pregnancies. In the study of Ekelund et al. showed that 51% of patients with GDM had impaired glucose tolerance and 30% developed diabetes mellitus within 5 years⁶. The prevalence of gestational DM is around 6-7% in the USA⁷. The prevalence of GDM generally varies in parallel with the prevalence of type 2 diabetes among different racial and ethnic groups. In our study, we found that the prevalence of GDM was 5%, but in a study made by Aytan H. et al. prevalence of GDM was 2.8⁸. Population characteristics (such as the average height and body mass index of the pregnant woman), test methods used for screening, and different

diagnostic criteria cause the prevalence of GDM to vary. However, it is known that the prevalence of GDM tends to increase over time due to increasing mean maternal age and weight⁹⁻¹².

Whether everyone should be screened for GDM is a controversial issue. Some experts recommend only high-risk patients should be screened for GDM. Helton et al. stated that it may be appropriate to screen only high-risk patients¹³. Risk factors for GDM include prior impaired glucose tolerance or previous history of GDM, family history, especially first-degree relatives, diabetes, pre-pregnancy body weight, $\geq 110\%$ of ideal body weight, or BMI $> 30 \text{ kg} / \text{m}^2$ or Excessive weight gain in early adulthood and between pregnancies or excessive weight gain during pregnancy, advanced maternal age (> 25 years), $> 4.1 \text{ kg}$ infant before birth, unexplained perinatal loss or malformed infant birth before birth, maternal birth weight $> 4, 1 \text{ kg}$ or $< 2.7 \text{ kg}$, the presence of metabolic conditions associated with the development of diabetes, such as the detection of glucosuria at the first prenatal visit, metabolic syndrome, polycystic ovary syndrome, glucocorticoid use, and hypertension.¹⁴⁻¹⁶ Republic of Turkey Ministry of Health pregnancy management guidelines proposes that GTT screening in low-risk populations should be made between 24 and 28 weeks of pregnancy¹⁷. Turkish Perinatology Society recommends a single step 75-g diagnostic test for the Turkish population. The association stated that this approach is more appropriate in terms of cost and patient compliance¹⁸.

Our clinic has also recommended a one-step 75-g diagnostic test for pregnant women between 24 and 28 weeks of gestation, for about one year. In our study, it was seen that among the non-university graduates test is difficult belief was as the most

common reason for not having OGTT. The possible cause of this condition may be the recommendation of a two-step test before in our clinic or sequential testing (50 gr screening test and then 100 gr diagnostic test) in family health centers. However, the most common reason for refusing the OGTT (23.1%) among pregnant women who graduated from university was that the test was reported to be harmful in the media. In the study by Karasu Y., it was seen that the frequency of application of oral glucose tolerance test gradually decreased after the explanations made by popular physicians in the media about the possible harmful effects of the test.¹⁹ It is known that famous people effect on society's value judgments, economic-commercial decision making processes and health perceptions. In the study of Hoffman et al., "Celebrity Impact " on health is summarized as follows. The statements made by the famous person using visual, written or social media or through advertising and sponsorship will have some consequences in the short, medium and long term²⁰. This situation can be interpreted as the fact that pregnant women with high sociocultural level follow various media outlets more frequently than those with low educational level and unfortunately, they rely more on this news. However, oral glucose tolerance tests have minor side effects (nausea, vomiting, diarrhea), but have no known major side effects²¹. Therefore, when they assert the harmful effects the test in the media, they should prove these assertions scientifically.

In our study, in order to prevent possible bias for each pregnant woman who does not want to undergo OGTT during 24-28 gestational weeks, at least 10 minutes of time was allocated in a single environment and the questions were asked by the same physician and this could be seen as the strength of our study. However, since our study included only a limited number of pregnant women admitted to our clinic and not having a larger population based study, it is an important limitation. Another limitation of our study is that the knowledge level of the pregnant women about the glucose tolerance test cannot be evaluated comprehensively and the long term outcome of the test cannot be predicted.

In conclusion, this study is an important study in terms of revealing the prejudices of pregnant women who applied to our clinic in Nigde province, even though there are few subjects. Based on these results, we believe that the OGTT will be explained more comprehensively to pregnant women in coordination with the related branch associations under the leadership of the Ministry of Health. It was also understood in this

study that the efforts of gynecologists are not sufficient to solve this problem.

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