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Analysis Of The Therapeutic Pregnancy Terminations For Fetal Reasons In a Perinatology Center

Perinatoloji Merkezinde Fetal Nedenlerden Dolayı Yapılan Terapötik Gebelik Terminasyonlarının Analizi

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ÖZ

Giriş: Bu çalışma perinatoloji kliniğimizde fetal nedenlerden dolayı yapılan terapötik gebelik terminasyonlarını analiz etmeyi ve anomalilerin spektrumunu tanımlamayı amaçladı.

Gerec ve Yöntemler: Bu retrospektif calışma, 1 Ocak - 31 Aralik 2015 tarihleri arası Sağlık Bilimleri Üniversitesi Zekai Tahir Burak Kadın Sağlığı, Uygulama ve Araştırma merkezine fetal nedenlerden dolayi terapötik gebelik terminasyonu icin basvuran hastaları içerdi. Hastaların demografik özellikleri, konjenital anomali tanısı aldıkları merkez, Sağlık Kurulunun son kararı, terminasyon yapılacak anomalilerin spektrumu ve terminasyon yapılan fetüslerin kromozomal analiz sonuçları bu tanımlayıcı çalışma için kaydedildi.

Bulgular: Sağlık Kurulumuza, çalışma süreci boyunca gebelik terminasyonu talebi ile 268 gebe başvurdu ve bu gebeliklerin %96'sı fetal nedenlere sahipti. Terapötik gebelik terminasyonu için en yaygın başvuru nedeni nöral tüp defektleri (NTD) idi (%40.6) ve bunu sırasıyla kromozomal anormallikler (%14.7), anhidramnioz (%14.2), santral sinir sistemi anormallikleri (%6.2), hidrops fetalis (%4.6), üriner sistem anormallikleri (%4.2), fetal çoklu organ anomalileri (Sendromlar) (%3.8), kardiyak malformasyonlar (%3.1), kistik higroma (%2.3), teratojenik ilaç kullanımı (%2.3), iskelet displazileri (%1.1), intrauterin enfeksiyonlar (%1.1), karın ön duvarı defektleri (%0.7) ve fetal metabolik hastalıklar (%0.3) takip etti. Postmortem genetik analiz 50 fetuse (%19.3) uygulandı ve bu fetuslerin 18'inde anormal kromozomal karyotip (%36) bulundu.

Sonuc: Türkiye'de araştırmacılar, doğum defektlerinin etkenlerini aydınlatacak doğum defektleri izleme programlarına ihtiyaç duymaktadırlar.

Anahtar Kelimeler: Doğum defekti, konjenital anomali, konjenital malformasyon, terapötik abortus.

ABSTRACT

Aim: This study was intended to analyze the therapeutic pregnancy terminations for fetal reasons in our perinatology clinic and describe the spectrum of fetal anomalies.

Material and Methods: This retrospective study included patients who applied for therapeutic pregnancy terminations for fetal reasons to University of Health Sciences Zekai Tahir Burak Women Health, Research and Practice Center between January and December 2015. Patients' demographic characteristics, congenital anomaly diagnose center, final decision of Health Board, spectrum of pregnancy termination reasons, and the results of chromosomal analysis of fetuses after termination are recorded for this descriptive analysis.

Results: During the study period, a total of 268 pregnant women applied to our Health Board for pregnancy termination and 96% of these pregnancies (n=258) had fetal reasons. The most common application for therapeutic pregnancy termination was NTDs (40.6%) followed by chromosomal abnormalities (14.7%), anhydramnios (14.2%), central nervous system abnormalities (6.2%), hydrops fetalis (4.6%), urinary system abnormalities (4.2%), fetal multiple organ abnormalities (syndromes) (3.8%), cardiac malformations (3.1%), teratogenic drug use (2.3%), skeletal dysplasias (1.1%), intrauterine infections (1.1%), abdominal wall defects (0.7%), fetal metabolic diseases (0.3%). Postmortem genetic analysis was applied to 50 fetus (19.3 %) and abnormal chromosomal caryotype was found in 18 of them (36 %).

Conclusion: In Turkey researchers are in need of birth defects monitoring programs which would enlight causative factors of birth defects.

Keywords: Birth defect, congenital anomaly, congenital malformation, therapeutic abortion.

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Introduction

Therapeutic abortion is the intentional termination of a pregnancy before the fetus can live independently. Maternal disorders, rape or incest, a fetus with congenital anomaly can yield to this procedure (1). A similar procedure after the fetus could potentially survive outside the womb is known as a "late termination of pregnancy" (2). The terms 'congenital anomalies', 'birth defects' and 'congenital malformations' are all used to describe developmental defects that are present at birth. The term anomaly is commonly used for all types of structural defects, chromosomal abnormalities, genetic syndromes, and metabolic defects (3). EUROCAT recorded prevalence of major congenital anomalies of 23.9 per 1,000 births for 2003–2007 (4). The prevalence may vary depending on the definition used, criteria used to include or exclude minor malformations and the time period of follow-up after birth.

Voluntary termination of pregnancy in Turkey is legal up to 10th weeks of gestation. After ten weeks, legal-induced abortion is allowed only for the following reasons; pregnancy threats woman's mental and/or physical health, impaired fetus, conception of rape or incests. Therapeutic abortion of uterus is legal up to 20th weeks of gestation for the pregnancies of rape or incest (5). Specified measurable reasons must be stated in a written report by an obstetrician with related branch specialists in medical board for pregnancy termination after 10th weeks of gestation (6). Turkish laws related to family planning use the term uterine evacuation instead of abortion because upper limit of gestational weeks for termination of pregnancy for the fetuses with congenital anomaly is not determined. Although, prenatal screening for birth defects is common in our health system, when we encounter with an impaired fetus, offering pregnancy termination is the only tool which we can offer to parents. We are in need of common practice of intrauterine fetal correcting surgery in Turkey.

In this study, we analysed the therapeutic pregnancy terminations for congenital anomalies and described the medical approach and the obstetric outcomes in congenital anomalies in our perinatology clinic.

Material Methods

This retrospective study included patients who applied for therapeutic pregnancy terminations for congenital anomalies to Health Sciences University, Zekai Tahir Burak Practice and Research Hospital between January 2015 and December 2015. Our hospital is a tertiary care center of Obstetrics and Gynecology. Patients' data were obtained from the medical records of Health Board. Our Health Board for pregnancy terminations consist of one perinatologist, one obstetrician, one neonatologist. The maternal and gestational age, body mass index (BMI), presence of systemic diseases, cigarette smoking, use of any medication during gestation, congenital anomaly diagnose center, the spectrum of fetal pregnancy termination reasons, the final decision of board, abortion techniques, and results of chromosomal analysis of fetuses after termination are recorded for this descriptive analysis. After the diagnosis of a congenital anomaly, a written report was stated by the perinatologist for the uterine evacuation. Before accepting the request of uterine evacuation by Health Board, a written informed consent was taken from pregnant and her husband if they were married. The report of perinatologist consisted of all of the measurable reasons for the abortion and if Health Board needed, comments of a related branch specialist was also added to report. Final Decision of fetal termination due to birth defect was taken based on the report of related branch specialist such as neonatologist, pediatric neurosurgeon, pediatric cardiologist by members of Health Board. For rape /incest cases, paper from court advising termination was needed for taking decision by our Health Board. Pregnancy category-D and-X drug use during organogenesis and premature preterm rupture of membranes (PPROM) prior to fetal viability were accepted as a pregnancy termination reason by our Health Board.

Statistical analysis

Statistical analyses were carried out using SPSS 17.0 for Windows (SPSS Inc., Chicago, IL, USA). The process included descriptive statistics.

Results

During the study period, a total of 112.767 patients attended to the perinatology clinic. 268 of these pregnancies (0.2%) applied to our Health board for pregnancy termination. The application for pregnancy terminations in ZTB Health Board were; 258 for fetal congenital anomalies, 2 for maternal health reasons, 8 for rape cases. Among fetal reasons, 204 of them (79.1%) were diagnosed in our hospital and the rest were referred to our hospital from other hospitals.

Demographic variables of the patients with fetal reasons for pregnancy termination are summarized in Table 1. Mean age of pregnants, gestational age, body mass index (BMI), gravidity, and parity of patients were 28.6, 17 weeks 1/7, 25.7 kg/m^2, 2.4, and 1.0, respectively. Systemic diseases were present at 12.8% of pregnancies (n=33). Cigarette smoking was present at 6,6 % of the patients (n=17) and 3.5 % of the group (n=9) had pregnancies of IVF conception. A total of 5 patients (1.9%) had a previous fetus with a major birth defect. First or second degree relativity among the spouses was 4.3%. Any medication use rate during pregnancy was 15.1 % (n=39). 14% of pregnancy terminations were greater than 22nd gestational weeks. 5.4% (14/258) of the requests for abortion were rejected by board members. Reasons for rejections were; fetal defect were thought not to be severe enough for pregnancy termination by related branch specialist (10 case), pregnants had advanced gestational age (more than 28th Gestational week) (2 case), suspicious teratogenic drug use was determined as safe for the pregnancy. Of 258 fetal reasons, postmortem genetic analysis was applied to 50 fetus (19.3 %) and abnormal chromosomal caryotype was found in 18 of them (36%). Evacuation methods were vaginal birth through labour induction by Misoprostol (n=224), histerotomy (n=12), and dilatation and curettage (n=8). Mean evacuation time for birth group was 18,5 hours. There were'nt any complications in 93.4% of cases.

Table:2 shows application reasons for pregnancy termination. Nearly half of the applications were due to nervous system abnormalities. The most common application for therapeutic pregnancy termination was neural tube defects (40.6%) followed by chromosomal abnormalities (14.7%), anhydramnios (14.2%), central nervous system anomalies (6.2%), hydrops fetalis (4.6%), urinary system anomalies (4.2%), fetal multiple organ anomalies (Syndromes) (3.8%), cardiac malformations (3.1%), cystic hygroma (2.3%), teratogenic drug usage (2.3%), skeletal dysplasias (1.1%), intrauterine infections (1.1%), abdominal wall defects (0.7%), fetal metabolic diseases (0.3%).

Discussion

Great advances have been made in prenatal screening and detection of congenital anomalies and genetic conditions. The main purpose of prenatal diagnosis is to inform parents about the congenital diseases which may or may not

Table 1: Demographic variables of the pregnants bared fetus with anomaly.

Variables	Values
Age (years) (Mean±SD) (min-max)	28.6±6.6 (16-46)
Gestational age (week) (Mean±SD) (min-max)	17.1± 4.1 (6-31)
Gestational age >22 weeks	36 (14%)
BMI (kg/m^2) (Mean±SD) (min-max)	25.7±4.4 (17-42)
Gravidity (Mean±SD) (min-max)	2.4±1.5 (1-12)
Parity (years)(Mean±SD) (min-max)	1.0±1.1 (0-7)
Systemic disease (n %)	33 (12,8%)
Cigarette Smoking (n %)	17 (6,6%)
IVF pregnancy (n %)	9 (3,5%)
History of previous fetus with birth defect (n%)	5 (1,9%)
First or second degree relativity among spouses (n%)	11 (4,3%)
Use of medication during pregnancy (n %)	39 (15,1%)
Final desicion of Health Board (n %)	
Yes	244 (94,6%)
No	14 (5,4%)
Abortion techniques (n %)	
Medical (Misoprostol)	224 (91,8%)
Hysterotomy	12 (4,9%)
Dilatation and Curretage	8 (3,27%)
Duration of labour (hour)(mean)	18,5

Table 2: Fetal reasons applied for pregnancy terminations.

Name of fetal reason	Number (n=258)	Percentage (100%)	Refused cases by board (n=14)
Nervous system anomalies	**115**	**44.5**	
Neural tube defect (NTD)	**105**	**40.6**	
Acrania	32	12.4	
Spina bifida	28	10.8	4
Meningomyelocele	20	7,7	1
Encephalocele	11	4,2	1
Anencephaly	11	4,2	
Iniencephaly	3	1,1	
Central nervous system anomalies	**10**	**6.2**	
Holoprosencephaly	7	2,7	
High grade hydrocephaly	3	1,1	
Chromosomal deformities	**38**	**14.7**	
Trisomy 21	20	7,7	1
Turner Syndrome	6	2,3	
Trisomy 18	4	1,5	
Trisomy 13	4	1,5	
Trisomy 15	1	0,3	
Trisomy 5	1	0,3	
Triploid	1	0,3	
Deletion	1	0,3	
Anhydramnios (PPROM and/ or chorioamnionit)	**37**	**14.2**	**2**
Hydrops fetalis	**12**	**4,6**	
Urogenital system anomaly	**11**	**4,2**	
Renal malformations	4	1,5	
Urinary + bladder malformations	4	1,5	
Renal + urinary bladder malformations	3	1,1	
Fetal multiple organ anomalies (Syndromes)	**10**	**3,8**	
Cardiac malformations	**8**	**3,1**	**1**
Cystic hygroma	**6**	**2,3**	**1**
Teratogenic drug usage	**6**	**2,3**	
Skeletal dysplasias	**4**	**1,1**	
High skeletal dysplasia	2	0,7	
Achondroplasia	1	0,3	
Diastometamyelia	1	0,3	
Intrauterine infections Maternal Acute Toxoplasmosis	**2** 1	**1,1** 0,3	
Congenital syphilis	1	0,3	
Abdominal wall defect (omphalocele)	**2**	**0,77**	**2**
Fetal metabolic disease	**1**	**0,38**	
Fetal reduction for multiple gestation	**6**	**2,3**	**1**

lead to pre- or post-natal therapy. Although, in-utero repair of some anomalies especialy spina bifida has been proven to reduce morbidity and mortality compared with postnatal repair (7), we couldn't commonly offer the chance of intrauterine repair of defect to the parents in Turkey.

Not all medical abortion requests of pregnants lead to termination of pregnancy, some of them may be refused by the related branch clinicians.

Children with birth defects have much more medical, social and educational life needs. Laws in Turkey support the termination of suspected fetuses with birth defects. For example, family with a Down child can not take the supportive social fund unless the child has concomitant major disability.

Birth defects are an important public health problem in terms of impact on the quality of life of affected children and their families, infant mortality rate, financial cost of improving quality of life of affected individuals, cost of prenatal screening (8). For these reasons, preventive measurements in terms of birth defects must be taken in priority. The causes of congenital anomalies are wide-ranging, with many anomalies remaining of undetermined etiology. Medications, infectious agents, and environmental toxins have all been implicated as teratogens and increase the risk for congenital abnormalities (9). Critical exposure periods of etiologic factors during pregnancy effect the type of anomaly.

Congenital heart defects (CHD) are the most common non-chromosomal birth deffect, at 6.5 per 1,000 births, followed by limb defects (3.8 per 1,000), anomalies of urinary system (3.1 per 1,000) and nervous system defects (2.3 per 1,000) (10). In our study, NTDs were the most common application reason for therapeutic pregnancy terminations. We don't know the major birth defect percentage out of Health Board records, because our records in Turkey are not sufficient for statistical calculation of whole number.

Conclusion

Family history, ethnic background, obstetrical history, known carrier status, or genetic analysis have clues for potential congenital anomalies (11). Studies about intrauterine repair of especialy NTD's will give opportunity of caring birth defect before irreversible obstacle occurred. Reduction of the number of women having to consider termination of pregnancy due to congenital birth defects can be achived by addressing risk factors, intrauterine surgical repair of birth defect and improving the outcome of affected surviving children and their families by means of educational, social and financial support to family and defective child (2). In Turkey researchers are in need of birth defects monitoring programs which would enlight causative factors of birth defects.

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