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CERVICAL CYTOLOGIC AND COLPOSCOPIC CHANGES IN CASES USING IUDs FOR A LONG TIME

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Abstract:*The present study aims to examine cervical cytologic and colposcopic changes in patients using IUDs for a long time. Our study is a cross-sectional study that enrolled 188 cases. 62 monogamous patients without a history of sexually transmitted infection, and using an IUD for 5 years or more were included in the study group (Group 1). 126 patients without a previous anamnesis of IUD use and patients in whom IUDs were not detected during the examination were enrolled in the control group (Group 2). All patients underwent a colposcopic examination and a smear was obtained. Patients with a history of HPV were excluded from the study. Smear test results and findings of colposcopic examination of the study and control groups were compared. Gravida, Parity, Number of Births, age at first coitus were determined through the patients' histories. The mean age of the patients in Group 1 was 38.67, age at first coitus was 19.49, and the mean age in Group 2 was 39.11 and age at first coitus was 18.95 years. There was a significant difference detected in the comparison of Gravida (p=0.03), while parity and NSD parameters were not found significantly different (p=0.15, p=0.14). Rates of mild ectopy in Group 1 and Group 2 were 25.8% and 19.18%, moderate ectopy were 25.8%, 28.6%, severe ectopy were 11.3% and 23.8%, respectively. Polyp detection rate was found 16.7% in Group 1, while it was 40.9% in Group 2. On the other hand, leukoplakia detection rate was 8.3% in Group 1, while it was found 18.2% in Group 2. no statistically significant difference was detected between the two groups. F. Mosaic rate in patients using IUDs was found significantly lower (χ^2= 3.74 p= 0.05). As a result of our study, no significant difference could be shown in NTZ, ATZ, Asetowhite, C.Mosaic, F.Punction, C.Punction, Atypical Vascularization, and Schiller rates.*

Keywords: *Cervical smear, Colposcopy, Inflammatory changes*

1.Introduction

Intrauterine devices are reversible, long-lasting, and the most commonly used birth control method worldwide [1, 2]. It is still unclear how IUDs work. It is believed that it has various effects on sperm, ovum, fertilization, implantation, and endometrium [3]. The optimal time for IUD insertion is the menstrual period [1, 2, 3]. Postpartum IUD insertion can be performed during the postpartum control visits 4-8 weeks after delivery [2, 4]. Studies could not prove the fact that IUDs increased the risk of pelvic infection and caused an ectopic pregnancy , Of all other female genital organ cancers, cervical cancer is the most common cancer type for women worldwide. Cervical cancer, with an ever-increasing incidence rate in younger females worldwide, has been one of the major causes of morbidity in women below 40 years of age [5]. Cervical cancer is seen at lower rates in developed countries where the public health is improved, while it is more prevalent in less developed countries [6]. Although Israel is not a developed country; women have the lowest incidence rates of cervical cancer since sexual behaviors, circumcision, and hygiene habits have an important place in the etiological causes [5, 7].

Cervical cancer doesn't progress suddenly and remains as precancerous lesions over the course of many years. This allows for an early diagnosis through some methods of cytologic and clinical diagnosis and creates a window of opportunity for a curative treatment [5, 6, 8]. Cytology and colposcopy are the most advantageous techniques used in the diagnoses of cervical cancer and pre-invasive lesions [5]. However; cytology doesn't provide the last finding of the disease, it is a screening method that should be performed with others for further examination (Colposcopy, Histo-Pathology). It is acknowledged that colposcopy and cytology are mutually complementary methods [9]. Cytology examines exfoliated cells, while colposcopy examines the changes occur in the vascular structure of the cervix [10]. According to some research, endocervical curettage (ECC) should be performed routinely in all cases with abnormal cytologic findings [8, 11]. ECC is performed when colposcopic examination is unsatisfactoryor fails to provide any finding that explains the abnormal cytology during a colposcopic examination [8]. Patients with an abnormal pap smear result or patients with a suspicious-looking cervix even they had a (-) pap smear should be evaluated by colposcopy and colposcopy directed biopsy [12, 13, 14]. The false-negative rate of the Pap smear test is about 20%-40%. These rates also cover the patients diagnosed with cervical cancer shortly after a normal cytology [15].

2.Method:

Our study aims to investigate cervical cytologic and colposcopic changes in patients using IUDs for a long period of time. The present study is a cross-sectional study enrolling 188 cases who presented to Istanbul Bakırköy Sadi Konuk Hospital, Department of Gynecology and Obstetrics, Gynecology Clinic. The study group (Group 1) included 62 monogamous patients without a history of sexually transmitted infection and using an IUD for 5 years or more. On the other hand, the control group (Group 2) included 126 patients without a previous anamnesis of IUD use and patients in whom IUDs were not detected during the examination. All cases underwent a colposcopic examination performed by the same gynecologist with the same colposcopic device (LEICA CLS 150 XC MS5, Germany) and a smear was obtained from all patients. Cases with a history of HPV were excluded from the study. Smear test results and colposcopic examination findings of the study and control groups were compared. Age, Gravida, Parity, Number of births, age at first coitus were determined through the patients' histories. A smear was obtained prior to the examination. The cervix was examined with the naked eye before applying

Acetic Acid (AA) and the presence of displaced endocervical epithelium (Ectropion or Ectopy) was noted. Ectropion and/or ectopy was classified as mild (Periorificial), moderate, and severe (reaching to Fornix zone) according to the area occupied in the cervix.

Previously, the presence or absence of atypical vascularization was recorded using a green filter by wiping the cervix with serum physiologic. Following this procedure, cervical mucus was removed with a 3% of AA solution and after waiting for about a minute, Squamocolumnar Junctions (SCJ) and Transformation Zone (TZ) were observed. The response of the cervix to AA was evaluated as mild and dense according to the severity of whitening. Mosaic and punctuation patterns were described as coarse and fine. Colposcopy was considered satisfactory in cases where SJC could be observed clearly and continuously and the entire TZ and any extent of a lesion, if present, were visible. On the other hand, colposcopy was considered unsatisfactory in cases where SCJ weren't observed clearly and TZ couldn't be seen fully and in cases with a lesion extending into the cervix canal where the upper limit could not be seen clearly. ECC was performed with the Novak curette in patients with unsatisfactory colposcopy in order to determine the treatment protocols and to examine the endocervical canal, as well. Punch biopsy was performed on mild-dense Aceto-White (AW) areas, Schiller positive areas and areas with fine or coarse mosaics and punctuations. Before obtaining the cytology and histo-pathology results, IUDs were not removed from any of the patients, including those diagnosed with lesions. Biopsy specimens fixed in 10% formaldehyde were sent to pathology. After a routine histo-pathological examination, 5-micron tissue sections stained with Hematoxylin Eosin were examined under a light microscope at 40x, 100x, and 400x magnifications.

2.1.Statistical Analysis

Statistical analysis of the results was performed using a SPSS 11.0 (Chicago_USA) package program. Chi-square test was employed for comparing the classified variables of the groups, and t test was used in independent samples to compare the continuos variables. Alternatively, Mann-Whitney U test was performed in the case of a different variations or a low number of subjects. $p<0.05$ was considered statistically significant. Classified variables were presented as number (n) and percentage (%) in the table.

3.Findings

The mean age of the cases in Group 1 and Group 2 were 38.67 years and 39.11 years, respectively. The mean age at first coiuts in Group 1 and Group 2 were 19.49 years and 18.95 years, respectively. No significant difference was found between the two groups regarding age and age at first coitus ($t=0.36$, $p=0.72$; $t=0.91$ $p=0.36$). There was a significant difference found in the comparison of Gravida ($p=0.03$); while parity and NSD parameters were not significantly different ($p=0.15$, $p=0.14$). Demographic characteristics of the patients are shown in Table 1.

Table 1. Demographic Characteristics of the Patients

	Group I (n:62) Mean±SD	Group II (n:126) Mean±SD	t	p
Age*	39.1±6.4	38.7±10.1	0.36	0.72
Age at first coitus*	18.9±2.8	19.5±4.2	0.91	0.36
Gravida**	4.12	3.59		0.03
Parity**	3.016	2.74		0.15
NSD**	2.62	2.61		0.14

** Student - T Test , **Mann Whitney – U Test*

Cross Table Ectopy results in Group 1 and Group 2 were as follows; Detection rates of Mild Ectopy in Group 1 and Group 2 were found as 25.8% and 19.18%, Moderate ectopy as 25.8% and 28.6%, Severe ectopy as 11.3% and 23.8%, respectively. No statistically significant difference was found between the two groups regarding the ectopy rates before colposcopy (Table 2).

Table 2. The Rates of Ectopy Detected with the Naked Eye before Colposcopy

	ECTOPY			
	Absent	**Mild**	**Moderate**	**Severe**
Group 1 (%)	37.1	25.8	25.8	11.3
Group 2 (%)	27.8	19.8	28.6	23.8

Smear results of Group 1 and Group 2 were as follows; the rates of unsatisfactory smear were 0.0%and 1.6%, coilocytosis rates were %1.6, %4.9, inflammation were 29.3%, 32.8%, chronic cervicitis were 31.7%, 29.5%, ASCUS were 4.9%, 1.6%, LGSIL were 6.5%, 4.9%, HGSIL were 1.6%, 0.0%, Squamous CA were 2.4% and 0.0%, respectively. No significant difference was detected between the patient and control groups regarding smear test results (Table 3).

Table 3. Smear results of the Groups

Smear results	Group 1(%)	Group 2(%)
Normal	22	24.6
Unsatisfactory Smear	0	1.6
Coilocytosis	1.6	4.9
Infection	29.3	32.8
Chronic Cervicitis	31.7	29.5
ASCUS	4.9	1.6
LG SIL	6.5	4.9
HG SIL	1.6	0
Squamous CA	2.4	0

Colposcopic examination results of the patients were as follows; in Group 1 and Group 2, polyp rates were found as 16.7% and 40.9%, leukoplakia as 8.3% and 18.2% respectively. No statistically significant difference was found between the two groups. F.Mosaic rate was detected significantly lower in patients using an IUD ($\chi^2 = 3.74$ $p= 0.05$) (Table 4).

Table 4. Colposcopic Examination Results of the Patients

Colposcopy Findings	Group 1(%)	Group 2(%)	
Unsatisfactory Colposcopy	33.4	18.2	
Polyp	16.7	40.9	
Leukoplakia	8.3	18.2	
Condyloma	25	0	
Specific Infection	8.3	0	
Cervix CA	8.3	13.6	
Erosion	0	9.1	
F Mosaic n, (%)	3 (4.8%)	18(14.3%)	χ^2=3.74p=0.05

In ECC results of Group 1 and Group 2, chronic cervicitis rate was 10% in patients with IUDs, while it was found 6.9% in the control group. HG SIL detection rates were 1.7% and 3.4 in Group 1 and Group 2, respectively. There was no statistically significant difference observed between the two groups.

The biopsy results in Group 1 and Group 2 were as follows: LGSIL; 13.3% , 16.4%, HGSIL; 0%, 3.3%, Squamous CA; 1.7% ,3.3%, Coilocytosis; 11.7% , 6.6% , Endometriosis; 0.0%, 0.8%, respectively. No statistically significant difference found between the two groups (χ^2: 6,18 p=0,52) (Table 5).

Table 5. Colposcopic biopsy results of the patients

Biopsyresults	Group 1(%)	Group 2(%)
Chronic Cervicitis	23.3	28.7
LG SIL	13.3	16.4
HG SIL	0	3.3
Squamous CA	1.7	3.3
Coilocytosis	11.7	6.6
Erosion	0	8
Endometriosis	0	0.8

4. Discussion

IUDs are one of the most efficient and the simplest contraception method used in patients selected very carefully. Non-specific, non-infectious, namely; the development of sterile vaginitis are observed more frequently during the use of an IUD when compared to the other contraceptive methods. In gynecology, studies investigating the relationship between malignancies and IUD use could not reach a conclusion on the possible carcinogenic potential of IUDs. As a result of IUD use, cytologic atypia are commonly observed in the squamous and columnar epithelium of the cervix. Nuclear atypia in the squamous epithelium are generally mild, but the severity may increase in the columnar epithelium. In fact, this atypia changes to a severe atypia that supports adenocarcinoma in situ and adenocarcinoma [15]. In a study carried out by Fiore et al. [16], cervical pathologies developed as a result of contraceptive methods were compared in women using IUDs and women using combined oral contraceptives. Cervical smear results revealed that mild dyskaryosis rate was 17.6% in women using an IUD, while it was found 10.53% in women using steroid OCs [16]. In another study performed by Howard et al. [17], the relationship between contraceptive methods, cervical dysplasia and carcinoma in situ was investigated. In this study, when the group using an IUD and the other group using OCs were compared, carcinoma in situ rate was found to be 1.4 times higher in the OC group, however; it was concluded that this rate was not statistically significant. In the recent years, a great success has been achieved in gynecology thanks to screening tests allowing for an early diagnosis and the treatment of cervical pre-invasive lesions. Nevertheless, unnecessary interventions may take place due to the low positive predictivity of the screening tests. In addition, even the high false negative rate of the screening tests affects their reliability, they are still of a great value as being the simplest and the most commonly used tests that can be performed widely.

In a study conducted by Risse et al. [18], cytologic and histological findings developed as a result of IUD use were investigated. Rates of inflammatory changes was detected as 85.9% in the group with IUDs, and as 75.3% in the control group, however; there was no significant difference found in the comparison of infection rates between the control group and the group using IUDs. In a series of 400 cases conducted by Fahmy et al., a statistically significant difference was found when the infection rates of the group using IUDs and the control group were compared ($p<0.05$) [19]. In our study, infection rates were detected as 29% in women using IUDs, and as 32% in the control group. This difference was not found statistically significant ($p=0.46$).

In a study by Usha et al. [15] conducted in 2603 patients using an IUD for 5 years, smear results obtained before IUD use and after a 5-year IUD use were compared. Dysplasia rate was found as 2.5% in smear results obtained before IUD use, and as 4.2% , 1.6% , 3.8% , 0.9%, and 3%, respectively, in smear results of a 5-year follow-up. According to the smear results obtained prior to IUD use, no change was detected during a 5-year follow-up of women with negative smear results or presenting inflammatory changes. Over the course of a 5-year follow-up, none of these women diagnosed with dysplasia before an IUD insertion developed carcinoma in situ. As a result of this study, it was concluded that the use of IUDs did not pose a risk of cervical dysplasia or cancer development. Additionally, a study by Risse et al. [18] expressed that a long term use of IUDs did not entail a risk of moderate or severe dysplasia or development of carcinoma in situ, and that even atypical squamous metaplasia and mild dysplasia might be detected in patients using IUDs, they could regress in time when the IUD was removed.

HSu et al. [20] published a wide series of studies reporting that there was no association between the long term use of IUDs and uterine malignancies at all. A study published by Pike et al. [21] increased the reliability of IUDs by revealing that IUDs containing progesterone in particular had a reducing effect on the incidence of endometrial cancer. In our study, ASCUS, LGSIL, and HGSIL rates were detected as 1.6%, 4.9%, 0.0%, respectively. When these results were compared with those of the control group, no statistically significant difference was found ($p=0.46$). A wide series of studies performed by Lassise et al. [22], enrolling a total of multicentric 1268 patients, investigated the association of cervical cancer with the types of IUDs and the duration of IUD use. It was concluded that using a copper IUD reduced the risk of cervical cancer significantly, while mechanical IUDs had no effect on cervical cancer development. It was also concluded that a long term IUD use had no positive protective effect on invasive cervical cancer development. In our study, there wasn't any squamous cancer case found in patients using an IUD. Yet, randomly selected patients in the control group were detected with squamous cancer at a rate of 2.4%. This, indeed, has once again proved the importance of a smear test that is used for screening.

In a study by Fahmy et al. [19], 100 patients with an IUD were compared with the control group

in terms of specific infection, dyskaryosis, and CIN and as a result, no significant difference was found ($p>0.05$). On the other hand, our study has found the fine mosaic rates significantly lower in patients with IUD than those in the control group ($p=0.05$). There was no significant difference detected in other colposcopic findings ($p=0.08$). In a study by Fahmy et al. [19], a statistically significant finding could not be found in fine mosaics. No significant difference was detected in Aceto-White areas, leukoplakia, punctuation and atypical vascularization ($p>0.05$), however; inflammatory colposcopic changes showeda significant difference in both Lippes loop group and Cu T200 (with copper) group ($p<0.05$). Similar to other studies conducted to date, our study could not find any association between IUD and invasive cervical cancer. Nonetheless, as in other studies [23], we cannot suggest that the copper IUD use has a protective effect on invasive cancer. There is a difference between our study and a study carried out by Engineer et al.[23] in finding an increased dysplasia rates in patients with copper IUDs.

5.Results

After obtaining smear test results, we performed colposcopy in patients using IUDs for more than 5 years. We investigated cervical changes that might be caused by >5 years of IUD use . As a result of our study; no significant difference could be detected in NTZ, ATZ, Aceto-white, C.Mosaic, F.Punction, C.Punction, Atypical Vascularization, and Schiller rates. To conclude, cervical changes that may result from a long term IUD use still remains a topic needing further investigation.

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ISOLATED TORSION OF A TUBAL ECTOPIC PREGNANCY: MUST BE KEPT IN MIND

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Abstract: *Isolated fallopian tube torsion without involvement of the ovary is a rare condition most frequently presenting during reproductive years. The majority of the diagnoses are made on the operating table. We describe a case of isolated tubal torsion, unique in that localized necrosis and inflammation from the torsion. Its common symptoms are lower abdominal pain, vomiting, and nausea. Because these symptoms are nonspecific, isolated torsion of a fallopian tube may be misdiagnosed, delaying treatment and the opportunity to preserve the tube. The ultrasound-assisted examination was useful, but the specific diagnosis was made after laparotomy and histopathology.*
Laparotomy and laparoscopy are important tools in the diagnosis and prognosis of isolated torsion of a fallopian tube, and can help to preserve the fertility of these patients.

Keywords: *Isolated tubal torsion, tubal ectopic pregnancy, ectopic pregnancy, gynaecologic emergency, laparatomy, diagnostic laparoscopy*

1.Introduction

Adnexal torsion is responsible for 2.7% of all gynecological emergencies. Ectopic pregnancy is relatively common, occurring in 2% of all pregnancies. Ectopic pregnancy is an early pregnancy

complication in which a fertilized ovum implants outside the uterine cavity. Implantation may occur anywhere along the reproductive tract with the most common implantation site being the fallopian tube.

The incidence of ectopic pregnancy is 1% of pregnant women, and may seriously compromise women's health and future fertility. Currently, ectopic pregnancy can be often diagnosed before the woman's condition has deteriorated, which has altered the former clinical picture of a lifethreatening disease into a more benign condition in frequently asymptomatic women [1].

Torsion of the fallopian tube can occur at any age and most of the patients are under 30 years of age. Cases have been reported from premenarcheal to postmenopausal age group and are more common in pregnancy. The exact cause of torsion is unknown and various theories have been postulated [2-6]. Proposed theories for tubal torsion can be classified as:

1.Anatomical abnormalities: Long mesosalpinx, tubal abnormalities, haematosalpinx, hydrosalpinx, hydatid of Morgagni.

2.Physiological abnormalities: Abnormal peristalsis or hypermotility of tube, tubal spasm and intestinal peristalsis.

3.Haemodynamic abnormalities: Venous congestion in the mesosalpinx.

4.Sellheim theory: Sudden body position changes.

5.Trauma,

6.Previous surgery or disease (Tubal ligation, Pelvic Inflammatory Disease (PID)

7.Gravid uterus.

Acute abdomen in pregnancy may be due to several genital and non-genital conditions. Isolated torsion of the fallopian tube is an uncommon event with an incidence of about 1/1,500,000 women and it has been described as a rare cause of acute abdomen in pregnancy [7, 8].

Bozkurt and Kara Bozkurt reported very rare conditions related with ısolated torsion of a fallopian tube in a postmenopausal woman. They were also detected high impedance of vascular flow around the cyst wall. In their study they were mentioned that imaging modalities could not provide a definitive diagnosis. Tubal torsion was diagnosed upon laparotomy [9].

2.Case Presentation

30-year-old G4 P3 healthy female presented to the emergency department with generalized abdominal pain.She had one-month amenorrhea, She reported a 1-day history of generalized abdominal pain, nausea, and vomiting, which on presentation to the had localized to her right lower quadrant.On per speculum examination, minimal bleeding through os was seen and per vaginal examination the uterus was anteverted and of normal size with cervical motion tenderness. Vaginal ultrasound on admission revealed an empty uterus, a small corpus luteal cyst in the left ovary and free fluid. MRI results were inconclusive, revealing a fluid collection in the right lower quadrant, but without definitive appendicitis. The radiologist hypothesized ruptured ovarian cyst? or peritoneal inclusion cyst as possible sources of the fluid. Given the persistent nature of the pain and physical exam findings, general surgery agreed to a diagnostic laparoscopy. Serum β-hCG was 500 IU/ml on admission. The patient was admitted for observation and was planned to repeat β-hCG after 48 hours. Urine pregnancy test was positive. Her haemoglobin was 11 gm and other laboratory investigations, total leucocyte count, differential leucocyte count, and urine, were found to be normal. Since the patient was hemodynamically

stable, we proceeded with diagnostic laparotomy under general anaesthesia laparotomy revealed 250 mL of haemoperitoneum. The left fallopian tube was twisted once at the medial end and contained an ruptured ectopic pregnancy in the ampullary region with oozing from the fimbrial end. The right tube and ovary were normal. Left salpingectomy was performed. Postoperative period was uneventful. Histopathology revealed chorionic villi in right tube and serous cystadenoma of left ovary.

3.Discussion

Adnexal torsion accounts for 2.7% of all gynecological emergencies .The most common presenting symptom is pain with other associated symptoms such as nausea, vomiting, bowel and bladder complaints. Temperature, WBC and ESR may be normal or slightly elevated [10]. In the present patient had low-grade fever but normal counts. Imaging findings in torsion of the fallopian tube are nonspecific and clinical correlation is very important. Many reports indicate that torsion of the fallopian tube is more common on the right side than on the left. This may be due to the presence of the sigmoid colon on the left side or to the slow venous flow on the right side, which may result in congestion [4]. Another reason could be that more cases of right-sided pain are operated because of the suspicion of appendicitis, whereas left-sided cases may be missed or resolve spontaneously. This was a rare presentation of torsion of left fallopian tube with ectopic pregnancy. Early surgical intervention is recommended in order to salvage the affected tube and preserve fertility. Torsion of fallopian tube containing an ectopic pregnancy is extremely rare. Tubal torsion should be considered in the differential diagnosis of abdominal pain in young women.

4.Conclusion

Isolated fallopian tube torsion is extremely rare cause of acute abdomen in pregnancy. Early surgical intervention is recommended in order to salvage the affected tube and preserve fertility. Accurate ultrasound flowmetry can also provide a prediction of the surgical procedure needed and can be highly useful in the discussion of the indication. In order to prevent subsequent complications. Isolated fallopian tube torsion is a rare cause of acute abdomen in pregnancy which has to be suspected when ultrasound detects normal ovaries and a pelvic cyst.

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EVALUATION OF PROFESSIONALISM OF NURSES IN THE CITY CENTER OF ELAZIĞ, TURKEY

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Abstract: *Professionalism is a multi-dimensional concept that provides nurses with opportunities to grow personally and professionally This study was carried out with the aim of determining the professional attitudes of nurses in Elazığ,Turkey. This descriptive study was conducted in Elazığ Education and Research Hospital, Harput Public Hospital, Sarahatun Public Hospital, Mental Health Diseases Hospital, Family Practice Centers, Dermatological and Veneral Diseases Hospital, Fırat University Education and Research Hospital and four private hospitals in October 2013 . Data was collected using a questionnaire, which included demographic characteristics of nurses and an Inventory to Measure Professional Attitudes in Nurses. According to results, 80.4% of participants were female and %19.6 of them were male. 40.6% of them were between 22-25 age, 38.3% 26-29 and 21.1% 30 and over. 53.4% of nurses were married, 46.6% of them were single. Only 33.1% had child and 66.9% had not a child. Of all participants 94.7% work in a hospital and others in family practice center. 39.8% of nurses work in internal clinics, 43.6% in surgical clinics, 11.3% emergency services and 5.3% in family practice centers.10.5% of nurses are chief and 84.2% are clinical nurses. It can be reported that 63.2% of participants have a 0-5 year of work experience, 26.3% 6-10, and 10.5% 11 years and over. 21.1% of nurses don't have monthly clinical watches , 21.8% of them have 1-4 watches and 30.8% have 5-8 watches.*

When the scores gained from Inventory to Measure Professional Attitudes in Nurses were analyzed, the highest score was 160 and the lowest was 74. The mean score was 137.1±13.9.

Key Words: *Professionalism, nurse, inventory, attitude*

1.Introduction

Job is a group of homogeneous tasks related by similarity of functions. When performed by an employee in an exchange for pay, a job consists of duties, responsibilities, and tasks (performance elements) that are defined and specific, and can be accomplished, quantified, measured, and rated. From a wider perspective, a job is synonymous with a role and includes the physical and social aspects of a work environment. Often, individuals identify themselves with their job or role (foreman, supervisor, engineer, etc.) and derive motivation from its uniqueness or usefulness [1].

The term 'professionalism' refers to the conduct, qualities, and goals that characterize a profession and usually describes behaviours that are expected of the members of the profession. Healthcare providers demonstrate professionalism by attitudes, knowledge, and behaviours that reflect a multi-faceted approach to the regulations, principles, and standards underlying successful clinical practices [2].

Professionalism is a multi-dimensional concept that provides nurses with opportunities to grow personally and professionally.

Professionalism in nursing results in enhanced patient care and greater job satisfaction among nurses, and nurse retention [3,4].

Professionalism in nursing has not been without its challenges from inception to today. These challenges include educational preparation, diversity in the nursing population, lack of leadership skills, and the nature of the job. It is only through identification and continued work to resolve these conflicts that nursing will proceed to gain the full recognition and respect of a profession [5-7].

In 1971 Ronald M. Pavalko offered eight dimensions to describe a profession. This scale allows professions to exhibit various degrees of these attributes and possess most, if not all, of these dimensions. These are theoretical framework as a basis for practice, relevance to social values, (educational) period, autonomy, commitment to lifelong work, a common identity and distinctive subculture, a code of ethics [8-12]. Nurses demonstrating the attributes of professionalism impact positively on patient satisfaction and health outcomes. The objective of this article is to explore and analyze the phenomenon of nursing professionalism.

2.Method

This study was carried out with the aim of determining the professional attitudes of nurses in Elazıg,Turkey. It is a descriptive study. The study was conducted in Elazığ Education and Research Hospital, Harput Public Hospital, Sarahatun Public Hospital,Mental Health Diseases Hospital, Family Practice Centers, Dermatological and Veneral Diseases Hospital, Fırat University Education and Research Hospital and four private hospitals in October 2013 . According to given information by Health Ministryof Turkey there were 150 nurses graduated from undergraduate health schools and working in Elazığ, city center. We didn't use any sampling method and tried to reach all population.Only 133 of nurses were reached because of the reasons of being on vacation , reassignment or withdrawal from work.

Data was collected using a questionnaire, which included demographic characteristics of nurses and an Inventory to Measure Professional Attitudes in Nurses developed by Erbil ve Bakır [13].

The inventory included 28 items contribution to socio-demographic data of nurses: age, gender, education, marital status, owing child, institution, working position, monthly clinic watch and perception of nurses about profession.

The inventory also included questions about , autonomy , cooperation, competence and continuous education of nurses. Answers were given on a 5-item Likert-type scale (1=I do not agree at all; 2=I do not agree; 3=I am not certain; 4=I partly agree and 5=I completely agree). Cronbach's alpha value for this studys is 0.89.

The data were evaluated using the SPSS version 15.0 program . Continuous variables were expressed as weighted means and standard deviations or overall means and standard deviations whereas percentages and frequencies were used for categorical variables . For the continuous variables parametric test conditions were tested. Analysis of the difference between two groups was performed by Student's t test. Anova and Tukey tests were used in order to conduct post hoc analyzes. A p value less than 0.05 was considered as statistically significant.

Before the data were collected ethics comittee approval from Fırat University Etihics Committee and and institutional permissions from Health Ministry were obtained. The students were asked to read the explanations related to the study on the front page of the questionnaire and to complete the questionnaire if they wished to participate in the study.

3.Results

Data of socio-demographic characteristics of nurses participated in the study were analyzed. The results can be seen from Table 1.

As can be seen fom Table 1, 80.4% of participants were female and %19.6 of them were male.40.6% were between 22-25 age, 38.3% 26-29 and 21.1% were 30 and over. 53.4% of nurses were married, 46.6% of them were single. Only 33.1% of participants had child and 66.9% had not a child. Of all participants 94.7% work in a hospital and others in family practice center. 39.8% of nurses works in internal clinics, 43.6% in surgicalclinics, 11.3% emergency services and 5.3% in family practice centers.10.5% of nurses are chief, 84.2% are clinical nurses. It can be reported that 63.2% of participants have a 0-5 year of work experience, 26.3% 6-10, and 10.5% 11years and over. 21.1% of nurses don't have monthly clinical watches , 21.8% 1-4 watches and 30.8% have 5-8 watches.

Table 1. Socio-demographic Characteristics of Nurses (N=133)

		N	%
Gender	Female	107	80.4
	Male	26	19.6
Age	22-25	54	40.6
	26-29	51	38.3
	30+	28	21.1
Marital Status	Married	71	53.4
	Single	62	46.6
Education	Undergraduate	126	94.7
	Postgraduate	7	5.3
Child owning	Yes	44	33.1
	No	89	66.9
Number of children	Any	89	66.9
	1-4	44	34.1
Working Place	Hospital	126	94.7
	Family Practice center	7	5.3
Working Clinic	Internal Clinics	53	39.8
	Surgical Clinics	58	43.6
	Emergency	15	11.3
	Family Practice Center	7	5.3
Working position	Chief nurse	14	10.5
	Nurse in clinics	112	84.2
	Nurse in Fam. Prac.	7	5.3
Work experience	0-5 years	84	63.2
	6-10 years	35	26.3
	11+	14	10.5
Monthly clinic watch	No	28	21.1
	1-4	29	21.8
	5-8	41	30.8
	9 +	35	26.3

When the scores obtained from Inventory to Measure Professional Attitudes in Nurses were analyzed, it was seen that the highest score was 160 and the lowest was 74. The mean score was 137.1±13.9.

Table 2. Relation Between Professional Attitudes in Nurses , Work Experience and Age

	Correlation with Professional Attitudes	
	r	P
Age	0.242	0.005
Work experience	0.255	0.003

When the relationship between Professional Attitudes in Nurses and age is regarded, it was seen that there was a significant positive correlation (r=0,242, p<0,05). Also there was a positive correlation between Professional Attitudes in Nurses and their work experience (r=0,255, p<0,05).

Table 3. Effect of IMPAN Scores on Some Attidudes of Nurses

Attitude	n	IMPAN scores X±SS	t
Not gaining professional qualification prevents professionalisation			
Yes	121	138.28±11.87	(t=3.201,p<00,1)
No	12	125.25±24.89	
Caring is basic occupation of nurses			
Yes	47	141.55±9.86	(t=2,795, p<0,005)
No	86	134.67±15.20	

As can be seen from Table 3, mean of IMPAN who think that not gaining professional qualification prevents professionalisation in nursing is higher and differ from others (t=3.201,p<00,1). On the other hand, mean of IMPAN who think " basic occupation of nurses is caring" is higher and different from nurses thinking the opposite (t=2,795,p<0,05).

4.Discussion

In this study, mean score of IMPAN was found 137.1±13.9. When the highest score of IMPAN is 160 is taken into account, it can be said that mean of IMPAN scores is high for our study.

The highest score of IMPAN was about the question "I do scientific research in my working field", and the lowest was about the question " I am always in connection with my colleuges and patients" and "I try to gain confidence of patients". Kavaklı and friends reported that nurses gained

highest results from research, qualification and continous education. These findings are compatible with our results [14]. We didn't find a relationship between educational status of nurses and their mean score of IMPAN.Similar results were seen in the study of Karamanoğlu and friends [4]. There wasn't a significant relationship between child owning and mean IMPAN scores. Also Karamanoğlu and friends found similar results [4]. We found that there is a positive relationship between work experience and IMPAN scores.We can say that proffesional attitude increase during years. İleri and friends stated that new graduated nurses experience fatigue and exhaustion when struggling for adaptation to working conditions [15] .These findings are compatible with ours.

We can recommend some suggestions in order to increase Professional attitudes of nurses.For example, nurses can participate in scientific activities especially congresses.Membership of professional organisations for nurses can be facilitated.Nures can plan and carry projects regarding improving patients health.

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DO ORGANIZATIONAL JUSTICE PERCEPTIONS INFLUENCE HEALTHCARE WORKERS' ORGANIZATIONAL CITIZENSHIP BEHAVIOR?

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Abstract: *Employees in complex and chaotic hospitals have become important for the perception of organizational justice to see themselves as a citizen of the institution. This study aims to investigate the effect of sub-dimensions of organizational justice perceptions on the sub-dimensions of organizational citizenship perceptions in the hospital sector. It will then try to explain how managers' decisions and practices are reflected to hospital staff.*

Study analyzes were conducted at the individual level. The study was conducted with 346 health workers who volunteered to fill the Likert type questionnaire in three hospitals. Moorman's organizational justice scale was used to measure Organizational Justice Perception, and the scale developed by Podsakoff, MacKenzie, Moorman and Fetter was used to measure Organizational Citizenship Behavior. The aim of this study is to reveal the relationship between the perceptions of organizational justice (OJP) and organizational citizenship behaviors (OCB) of the health care workers with the model created in the framework of the aims and assumptions of the research. Pearson correlation and multiple linear regression analysis were used to test the developed model.

In research findings, it was seen that the perception of organizational justice of health workers affected organizational citizenship behavior. From the sub-dimensions of organizational justice perception, it has been understood that procedural justice is the strongest influential factor in organizational citizenship perception. It has been determined that the justice of interaction in health care workers affects consciousness and courtesy behaviors positively and distribution justice has a negative relation.

It is thought that health managers are required to support the sense of organizational justice in health workers positively, for to strengthen institutional peace and order.

Key words: *Organizational Justice Perception, Organizational Citizenship Behavior, Health Care Workers, Hospital.*

1.Introduction

Businesses generally function as labor-intensive or technology-intensive systems. Hospitals providing healthcare services not only use state-of-the-art technology intensively but also employ a great number of staff with different educational backgrounds ranging from low levels to high levels of education. That is, hospitals are both technology-intensive and labor-intensive units of production. Services are very complicated in such businesses because each patient requires a different service process. Aside from regular working hours, continued service is also offered in hospitals through twenty four-hour shifts or rotating shifts. Some employees contribute to the servicing process through physical strength, while some contribute to the production process by their advanced knowledge and techniques. Some employees earn as low as the minimum wage, while some are known to earn 10-20 times the minimum wage.

In such a complicated and chaotic structure, perceived organizational justice of employees become significant for due performance of their duties. The degree to which employees perceive themselves as citizens of an organization and the fairness of organizational practices towards employees are two important issues. The present study aims to examine how the sub-dimensions of organizational justice perceptions of employees affect the sub-dimensions of their organizational citizenship perceptions in healthcare sector. It will thus be attempted to explain how the decisions and practices of hospital management are reflected on hospital staff.

Conceptual Framework:

Perceived organizational justice (POJ) is defined in many different ways; however Beugre collects these definitions on a common ground and defines organizational justice as "the equity perceived by an individual in economic and social exchanges with his/her superiors, colleagues, and organization as a social system [1]". Some theories are proposed to describe how justice perception occurs in individuals within the organizations, including Equity Theory [2], Relative Deprivation Theory, [3,4], Justice Judgment Model [5], Comparative Cognition Theory [6] and Control Theory [7].

Dimensions of Perceived Organizational Justice are addressed in three sub-dimensions which are distributive, procedural and interactional justice. However, Kılıç et al. [8] also add collective justice to these three dimensions. These dimensions can briefly be described as: Distributive Justice: The justice perceived by comparing individual's investments (effort, labor etc.) in the organization and gains/results earned in exchange [2]. Procedural Justice: The perception of an individual in relation to the fairness of procedures/processes regulating the allocation of organizational rewards and resources [5]. Interactional Justice: The quality of relationships between an individual and his/her superiors (courtesy, respect, explanation etc.) [9]. Collective Justice: Collective organizational justice perception, differently from individual justice perception, encompasses the justice practices of other employees as well and can be defined as the reflection of individual justice perception on group level [8].

Organizational Citizenship Behavior (OCB) is defined as an individual's voluntary behavior that is not directly or explicitly described in an organization's official reward system and helps the organization to operate effectively [10]. According to another definition, OCB includes behaviors such as avoiding the use of commanding remarks, providing organizational benefits, informal, minimizing undesirable behaviors such as complaining, finishing the work within the given time, innovating and voluntarily helping others [11].

Dimensions of Organizational Citizenship:

It is categorized into five sub-dimensions [12]:

Altruism (Practice of concern for the welfare of others): Helping colleagues, customers and superiors voluntarily [10].

Sportsmanship: Taking a positive attitude against obstacles and difficulties; willingness and cooperation [13].

Civic Virtue: Macro-level devotion to the organization and voluntary involvement in the life of the organization as evidenced by attending meetings, sharing opinions and ideas regarding organizational policies and vision [13].

Conscientiousness: Effective use of time and resources to increase productivity; making an effort above and beyond formal requirements [10].

Courtesy: Behaviors to prevent intra-organizational conflicts; interpersonal constructive communication [10].

Studies in the related literature determined that there is a relationship between perceived organizational justice and organizational citizenship and that organizational justice is the independent (precursor) variable and organizational citizenship is the dependent (control) variable [14-15].

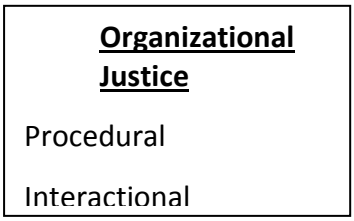
2.Method:

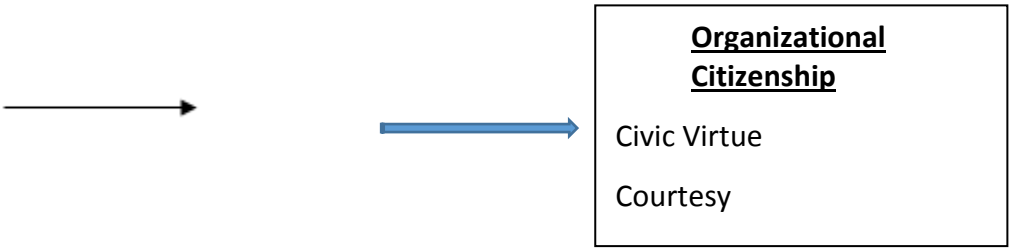
Studies are analyzed on the individual level. The target population consists of healthcare staff working in state-run hospitals in the cities of Gümüşhane and Trabzon. The state hospital in Gümüşhane and three state hospitals in Trabzon were called, face-to-face interviews were performed with the staff working in these hospitals, and 346 employees who agreed to fill in the survey were included in the sampling.

Five-point Likert scales were used to collect study data containing agreement/disagreement levels from 1 (Strongly Disagree) to 5 (Strongly Agree). Increasing points promote perceived organizational justice and organizational citizenship behaviour positively. Moormon's organizational justice scale was used to measure Perceived Organizational Justice which is the independent variable of the study[19]. Organizational justice scale consists of 7 items for procedural justice, 6 items for interactional justice and 5 items for distributive justice. To measure Organizational Citizenship Behavior, the dependent variable of the study, the scale developed by Podsakoff, MacKenzie, Moorman and Fetter [13,26] was used. Sub-dimensions of the Organizational Citizenship Behavior scale consist of 5 items for conscientiousness, 5 items for sportsmanship, 4 items for civic virtue, 5 items for courtesy and 5 items for altruism. The mentioned scale is widely used in the literature [27].

The model created within the framework of the objective and assumptions of the study [28-31] aims to present the relationship between perceived organizational justice (POJ) and organizational citizenship behaviors (OCB) of healthcare staff. Pearson correlation and multiple linear regression analysis have been used for testing the model developed.

3.Research Model:





4.Findings

64.7% of the hospital staff work in Trabzon and 35.3% of them work in Gümüşhane. 67.9% of them are females, 45% nurses, 14.1% technicians, 9.6% doctors and 27.7% other hospital staff. Average age is 35.54 (7.98), average working period in the profession is 5.73 (4.93) years and average working period in the hospital is 3.06 (3.56) years.

Agreement/Disagreement levels of the hospital staff in the scale items regarding the dimensions of perceived organizational justice and organizational citizenship behaviors are given in Table 1.

Table 1: Descriptive Data

Dimensions	Mean	Standard Deviation
Organizational Citizenship		
Civic Virtue	3.9137	.69267
Courtesy	4.1860	.56719
Sportsmanship	3.1621	.80249
Conscientiousness	4.2355	.58265
Altruism	4.1079	.60072
Organizational Justice		
Procedural	3.2959	.83572
Interactional	3.4396	.91874
Distributive	2.8511	1.10326

It is observed that the healthcare staff participating in the study had an average above 4 in conscientiousness, courtesy and altruism dimensions and an average above 3 in sportsmanship and civic virtue dimensions of organizational citizenship perception. As for perceived organizational justice, it is understood that interactional and procedural justice values were above 3 and distributive justice had the lowest value with 2.85.

Table 2. Relationships between parameters

	1	2	3	4	5	6	7	8

1-Civic Virtue	[.71]							
2-Courtesy	.565**	[.73]						
3-Sportsmanship	.226**	.119*	[.67]					
4-Conscientiousness	.519**	.699**	-.034	[.72]				
5-Altruism	.599**	.667**	.093	.588**	[.70]			
6-Procedural	.299**	.266**	.206**	.253**	.246**	[.94]		
7-Interactional	.227**	.227**	.164**	.230**	.097	.703**	[.93]	
8-Distributive	.034	.026	.247**	.011	-.021	.603**	.590**	[.95]

** P< .01; * P<.05

Pearson correlation coefficients between the variables are summarized in Table 2. Analysis of the calculated correlation coefficients demonstrates that the relationships between independent variables are not above the limits (.80) that would cause a multiple linear regression problem. Cronbach Alpha coefficients which are calculated to test the reliability of the scales used are given on the diagonal parentheses in Table 2. Coefficients show that the reliability is above the acceptable limit (.70) for all scale dimensions.

Table 3: Multiple Linear Regression Analysis Results

	Conscientiousness	Altruism	Sportsmanship	Courtesy	Civic Virtue
Procedural	.282**	.443**	.105	.304**	.372**
Interactional	.192**	-.068	-.027	.163**	.120
Distributive	-.272**	-.247**	.200**	-.254**	-.261**
F	14.473**	13.690**	8.141**	14.290**	16.694**
R square	.113	.107	.067	.111	.130

Results of multiple linear regression analysis conducted to test the effect of organizational justice dimensions on organizational citizenship behaviors are given in Table 3. According to the analysis results, procedural justice is proven to have positive effects on conscientiousness (β=.282), altruism (β=.443), courtesy (β=.304) and civic virtue (β=.372) (P<.01). Interactional justice produces significant (P<.01) and positive effects on conscientiousness (β=.192) and courtesy (β=.163). Distributive justice has negative effects on conscientiousness (β=-.272), altruism (β=-.247), courtesy (β=-.254) and civic virtue (β=-.261) and significant (P<,01) positive effects on sportsmanship (β=.200).

Within the framework of the research model developed, a strong total effect is found between perceived organizational justice (procedural justice, interactional justice and distributive justice) and organizational citizenship behavior (civic virtue, courtesy, sportsmanship, conscientiousness and altruism dimensions).

5.Discussion and Results

In the present study conducted on healthcare staff, as suggested by many researchers above [15,16] and in accordance with the general findings, it is overall proven that there is a significant and positive relationship between organizational justice and organizational citizenship. Differently from these studies, a negative relationship was detected between the POJ sub-dimension distributive justice and OCB. In an examination of the sub-dimensions of both concepts, Mathur and Umari [14] found that interactional justice is the most important factor affecting organizational citizenship behavior in a study

conducted on retail sector employees in India. This study shows that, for healthcare staff, procedural justice is a stronger factor affecting OCB and interactional justice has a positive effect on conscientiousness and courtesy.

In a study conducted in two private institutions in the US, Moorman [19] detected that procedural justice had relationships with four dimensions of OCB and distributive justice had no relationship with any dimensions of OCB. Just like Moorman's study, this study also revealed that procedural justice had relationships with four dimensions of OCB except for sportsmanship and distributive justice had negative relationships with all dimensions of OCB.

Yıldız's study [21] on nurses shows that perceived organizational justice has no effects on altruism and courtesy dimensions of OCB, while the present study shows that procedural justice has positive effects and distributive justice has negative effects on altruism and courtesy.

In conclusion, it can be suggested that perceived organizational justice affects organizational citizenship behavior in healthcare staff. It is observed that the sub-dimension of POJ, procedural justice, is the strongest factor affecting OCB. It can thus be said that the sense of justice generated from rules and procedures determining the allocation of sources and facilities to employees and stakeholders and their implementation has the most effect on the organizational citizenship behavior of healthcare staff. It is observed that interactional justice has a positive effect on conscientiousness and courtesy in healthcare staff. Therefore, it can be assumed that a high-quality communication between management and employees will increase the level of conscientiousness and the courtesy in behaviors of healthcare staff. It is essential that healthcare authorities support the perceived organizational justice of healthcare staff in order to strengthen organizational welfare and order.

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EFFECTIVENESS OF UMBILICAL ARTERY DOPPLER EXAMINATION, CARDIOTOCOGRAPHY AND AMNIOTIC FLUID INDEX APPLIED IN EARLY INTRAPARTUM PERIOD IN DIAGNOSIS OF FETAL DISTRESS

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Abstract: *The present study aims to find an alternative solution to continuous monitoring with Cardiotocography (CTG) during intrapartum management process of pregnant women with no previous antenatal follow-up, and to diagnose low-risk pregnancies and avoid the financial burden and discomfort to the pregnant woman resulting from continuous monitoring. Randomly selected 114 term pregnant women with expected vaginal delivery, singleton pregnancies and no major fetal abnormalities were included in the study. Routine obstetric ultrasonography (USG) and uterine artery (UA) doppler measurements were administered. The pregnant women included in the study had an average gestation period of 38.3 ± 1.3, average age of 26.1 ± 5.3, average parity of 2.1 ± 1.5 and average infant birth weight of 3280 ± 442 g. 13 pregnant women were considered to have fetal distress following continuous monitoring with cardiotocography. Furthermore, decreased amniotic fluid index was detected in 9 of them. 10 cases were assessed to be pathological as a result of Uterine Artery Doppler examination. In two cases deemed pathological, fetal distress developed and found to be statistically insignificant. No statistically significant difference was found between decreased amniotic fluid index cases and non-decreased amniotic fluid index cases in terms of C-section application due to fetal distress. In our study, Cardiotocography + Amniotic Fluid Index measurement was determined to be the most valuable combination as the delivery room admission test.*

Key words: *Fetal distress, intrapartum period, amniotic fluid index, Cardiotocography, Umblical Artery Doppler Examination*

1.Introduction

At present, the primary goal of obstetric applications is to minimize perinatal mortality. To this end, it is essential to focus on measures to decrease fetal mortality. Perinatal death rate in our country is, unfortunately, far higher than that in developed countries [1]. It is understood from the mortality statistics of Turkish Institute of Statistics (2016) that out of yearly 1,309,771 pregnancies, 18.7% of them result in miscarriages, approximately 4.7% of which are intentional, and 0.9% of them are stillbirths [2]. According to the data of National Center for Health Statistics (2001), perinatal mortality rate is 0.65% in the United States [3].

The primary cause of high perinatal morbidity and mortality rates is insufficient antenatal follow-up. It is demonstrated that maternal Doppler examination is quite useful in the determination of vascular disorders induced by pregnancy, hypertension and IUGR (Intrauterine Growth Retardation) in particular. However, studies also show that there is no sufficient correlation between fetal prognosis and Uterine Artery (UA) Doppler values measured at the beginning of dilatation phase in a no-contraction time frame [4].

Cartiotocography (CTG) is commonly used as the delivery room admission test in many clinics. Many recent publications suggest that CTG is not superior to intermittent auscultation in low-risk pregnancies . American College of Obstetricians and Gynecologists (ACOG) has stated that intermittent auscultation or CTG can be used for intrapartum monitoring in both low-risk and high-risk pregnancies [5].

Our study aims to find an alternative solution to continuous monitoring with CTG in intrapartum management problem of pregnant women with no previous antepartum follow-up, and to diagnose low-risk pregnancies and avoid the financial burden and discomfort to the pregnant woman resulting from continuous monitoring, and to provide an additional contribution to CTG assessments.

2.Method

Randomly selected 114 term pregnant women admitted to Perinatology Clinic of Taksim Training and Research Hospital with expected vaginal delivery, singleton pregnancies and no major fetal abnormalities were included in our study within the dates of December 2005 and May 2006. Requirements were regular contractions in cardiotocography (CTG), and cervical dilatation of less than 5 cm and absence of membrane rupture in vaginal examination.

Pregnant women taken to the delivery room were firstly subjected to bimanual examination, and then vaginal inspection with a speculum to determine the risk of membrane rupture. Afterwards, routine obstetric Ultrasonography (USG) and Uterine Artery (UA) Doppler measurements were performed.

Following obstetric and Doppler USG, the pregnant women were monitored with GE Medical System Corometrics 120 Series external fetal monitor. They were placed in the system in a comfortable reclining position on left side. During the interpretation of CTG data obtained on admission, such cases as presence of tachycardia (160 beats/min), late deceleration in more than 50% of contractions for 30 minutes, detection of decreased variability (beat to beat) longer than 30 minutes (<5 beats/min.), severe persistent variable decelerations (minimum 60 seconds and <60 beats/min.) or detection of persistent atypical variable decelerations, presence of bradycardia (for minimum 2 minutes <100 beats/min.), normal variability and acceleration, basal rate of 100-120 beats/min. without decelerations were assessed to be pathological.

During intrapartum follow-up, CTGs were classified based on the functional classification of Cabaniss [6]. Patients with atypical characteristics and basal rate changes, tachiarrhythmia, bradiarrhythmia, reduced variability, variable decelerations with atypical accelerations, late decelerations with absent variability, severe variable decelerations with atypical characteristics and with tachycardia and decreased basal variability, late variable decelerations (s-sign) with loss of basal variability, prolonged decelerations not entirely turning into basal, repeated prolonged decelerations, marked sinusoidal pattern, parameters in the form of agonal patterns were assessed to have Fetal Distress (FD).

Doppler examination was performed with GE Logic 3 digital color Doppler device. All of Doppler analyses were done by one physician. Doppler results were not reported to the delivery room team and any detected risk factor/factors were not reported to the physician doing the Doppler measurements. UA Doppler analysis was performed as two measurements, one from contracted and one from non-contracted uterus, during a time when the fetus was resting and not breathing when the pregnant woman was in supine position. After monitoring five identical waves, the image was frozen and Uterine Artery Pulsatility Index (UA PI) value was measured by using the automatic measurement method. All measurements were made from the free part of umbilical cord close to the bladder as much as possible to ensure standardization. Absence of end-diastolic flow and presence of backflow, and also PI value being above the 90th percentile according to a nomogram arranged based on gestational weeks [7] were interpreted as abnormal doppler results. USG was performed by the physician performing the doppler examination in the same session with the same device. Fetal biometry with USG, fetal presentation, amniotic fluid quantity and major fetal abnormality assessments were conducted. No fetal abnormality was detected in any of the cases and all fetuses were observed to be in cephalic presentation.

For Amniotic Fluid Index (AFI) assessment, four vertical measurements were taken by color Doppler from an area not containing umbilical cord when the pregnant woman was in supine position, and the women whose total of four measurements was below 50 mm were assessed to have oligohydramnios.

2.1.Statistical Method

As the most objective criterium for the diagnosis of FD by UA Doppler, CTG and AFI, abnormal intrapartum CTG patterns were used. Fisher's exact t-test was used in statistical analysis. Predictive power for detecting intrapartum FD, sensitivity, specificity, negative predictive value (NPV) and positive predictive value (PPV) of CTG, AFI and UA Doppler analyses were calculated and determined initially for each of them and later for three of them together.

3.Findings

According to CTG findings obtained from continuous monitoring of the pregnant women admitted to the study, 11.4% of women (n=13) were deemed to have FD. C-Section (CS) was applied to 6 of them who failed to respond to intrauterine resuscitation attempts and vacuum extraction was applied to one of them. Only one patient was taken to Neonatal Intensive Care Unit in the second postpartum hour due to meconium aspiration syndrome and was discharged from the hospital after 24 hours. The 5-minute Apgar score was found above 7 in all babies. No perinatal death was observed in any of the women included in our study.

Normal and abnormal results of the pregnant women for the three parameters analyzed are given Table 1 below.

Table 1. Distribution of Parameters by Normal and Abnormal Results

Parameters	Normal Results n (%)*	Abnormal Results n (%)
Doppler	104 (91.2%)	10 (8.8%)
CTG	90 (79%)	24 (21%)
AFI	105 (92%)	9 (8%)

CTG: Cardiotocography AFI: Amniotic fluid index

*Multiple analyses were conducted on pregnant women.

Eight women developing FD were observed to have abnormal CTG results on admission to the study. This result was found significant compared to the group with normal CTG. In CS applications due to FD, a statistically significant difference was observed between patients with non-reactive CTG and those with reactive CTG. The relationship between CTG and perinatal course of the cases is given in Table 2.

Table 2. Distribution of Cases with Normal and Abnormal Cardiotocography Results in Perinatal Period

Cases	Normal CTG (n=90)	Abnormal CTG (n=24)
Fetal Distress	5 (5.5%)	8 (33.3%)*
CS due to FD	1 (1.1%)	5 (20.8%)*
Need for NICU	1 (1.1%)	---
Vacuum due to FD	1 (1.1%)	---

*P<0.001FD:Fetal Distress, CS: C-Section NICU: Neonatal Intensive Care Unit

Decreased AFI was observed in 9 of the pregnant women. Statistically extremely significant FD was detected in 4 of them. No statistically significant difference was found between decreased AFI cases and non-decreased AFI cases in terms of application of C-section due to FD.

Following UA Doppler examination, 10 cases were assessed to be pathologic. In two of the pathologic cases, FD developed and was found to be statistically insignificant. According to pathologic and normal Doppler results, no statistically significant difference was detected in terms of the application of CS due to FD. Perinatal distribution of the cases according to UA Doppler results are presented in Table 3.

Table 3. Relationship Between Umbilical Artery Doppler and Perinatal Period

	Abnormal UA Doppler n (%)	Normal UA Doppler n (%)
Fetal Distress	2 (20%)	11 (10%)
CS due to Fetal Distress	1 (10%)	5 (4%)
Need for NICU	---	1 (1%)
Vacuum due to FD	---	1 (1%)
Total	10 (8.7%)	104 (91.3%)

FD: Fetal Distress CS: C-Section NICU: Neonatal Intensive Care Unit

Sensitivity, specificity, NPV and PPV resulting from the use of Uterine Artery Doppler Analysis and Amniotic Fluid Index assessments in dual and triple combinations were calculated. Results of this calculation along with previous calculations for CTG, AFI and UA Doppler are given in Table 4 below.

Table 4. Sensitivity, Specificity, Negative and Positive Predictive Values of Single, Dual and Triple Combinations of Cardiotocography (CTG), Uterine Artery (UA), Doppler Analysis and Amniotic Fluid Index (AFI) in Diagnosis of Fetal Distress (FD)

	Sensitivity	**Specificity**	**NPV**	**PPV**
CTG	61	84	94	33
AFI	30	85	81	44
UA DOPPLER	15	**92**	89	20
CTG+AFI	76	86	96	42
CTG + DOPPLER	61	78	94	26
AFI+DOPPLER	38	89	92	**45**
CTG+AFI+DOPPLER	**84**	82	**97**	37

CTG: Cardiotocography, UA: Uterine Artery, AFI: Amniotic Fluid Index, FD: Fetal Distress, NPV: Negative Predictive Value, PPV: Positive Predictive Value

4.Discussion

It is known that predetermination of fetal health in pregnant women applying to obstetric clinics reduces perinatal mortality rate [8]. Obstetricians traditionally tend to classify the pregnancies as “low” and “high” risk. Although there are many well-organized approaches for high-risk group, effective methods that will help the at-risk fetus in low-risk pregnancies are also needed [9]. CTG is still used in many clinics as the gold standard in intrapartum assessment and birth management. We also use CTG as the delivery room admission test and intrapartum monitoring method along with AFI measurement. Despite all of its negative features, CTG is still the most commonly used practical method to diagnose intrapartum FD and decide on obstetric intervention.

Many comprehensive studies investigating the effect of CTG on perinatal outcome suggest that CTG fails to improve the perinatal outcome [10-13]. Pursuant to these studies, CTG's sensitivity in determination of perinatal mortality is 60% while its specificity is less than 50%. Sarno et al. found the sensitivity, specificity, positive and negative predictive values of CTG performed on admission to the delivery room as 83%, 84%, 23% and 98% respectively, in terms of its ability to diagnose Fetal Distress requiring C-section [17]. Visser et al. found the sensitivity, specificity, positive and negative predictive values of CTG as 79%, 85%, 68%, 91% respectively, in terms of its ability to diagnose FD, by referring to post-partum normal and abnormal UA gas values of reactive CTG patterns. In this study, although positive and negative predictive values in the presence of deceleration were 81% and 89%, these values were found as 88% and 76% in the case of variability loss [18]. CTG findings of our study are in parallel with the findings of Visser's study. As a result, it is of common belief that CTG can improve perinatal outcomes despite the contradictory studies. While some studies recommend intermittent auscultation for low-risk group on admission to the delivery room [18], others strongly recommend CTG during the whole delivery [17].

Amniotic fluid volume is an important indicator of fetal status and a chronic indicator of fetal well-being. Decreased AFI must be regarded as a serious obstetric condition, because fetal distress and

birth asphyxia ratios increase considerably in these patients. This is closely related with the underlying causes (IUGR, placental insufficiency, post-maturity, pre-maturity etc.) The relationship between oligohydramnios and adverse perinatal outcomes have been demonstrated by many researchers [18, 19]. Moreover, fetal heart rate changes may occur in association with the squeezing of cord between the baby and uterus wall during labor in fetal heart trace. In our study, similar with other studies in the literature, a significant difference was found between normal AFI cases and low AFI cases. However, in our study, no statistically significant difference was found between decreased AFI cases and non-decreased AFI cases in terms of C-section application due to fetal distress. This can be explained by both inadequate number of total cases and inadequate number of oligohydramnios cases. In a study by Baron C. et al investigating the effect of oligohydromnios during labor, variable decelerations and C-section due to FD were observed more in oligohydramnios cases. No difference was found between the groups with respect to Apgar score or neonatal complications [22]. In this study, sensitivity, specificity, positive predictive value and negative predictive value of oligohydramnios as a predictor of C-section delivery due to FD was found as 78%, 74%, 33% and 95% respectively.

No significant relationship was observed between FD development and UA Doppler examination performed during early intrapartum period. Furthermore, according to pathologic and normal Doppler results, no statistically significant difference was detected in terms of the application of CS due to FD. Studies in literature suggest that Doppler examination does not provide statistically significant benefits in low-risk groups in intrapartum period [7, 20-22]. On the other hand, there is an all-around agreement about the use of Doppler in high-risk groups [4,23, 24]. Farell et al. reviewed the literature for the use of intrapartum Doppler velocimetry and examined the Doppler results of 2700 cases from low- and high-risk groups selected not based on any criteria. They concluded that this technique is a poor indicator of adverse perinatal outcomes in low-risk group. It was stated that Doppler velocimetry has a minor role in the follow-up of fetal well-being during labor [24].

As is known, modified biophysical profile only uses non-stress test and amniotic fluid test, and this test was found to be more reliable than all biophysical profiles [18]. Evaluation of CTG and AFI together showed that sensitivity and positive predictive value increased significantly compared to the use of only CTG - 61% versus 76% sensitivity and 33% versus 42% positive predictive value. No significant difference was found in specificity and negative predictive value. The use of CTG + AFI displayed the highest sensitivity except for when all three of them were used together.

The highest sensitivity (84%) was obtained from simultaneous use of the three tests in our study. However, simultaneous use of them was shown to have no superiority over the use of CTG + AFI. In all tests and combinations, positive predictive value was found to be low. Taking all the criteria into consideration, CTG + AFI measurement was assessed to be the most valuable combination to use in admissions to the delivery room. In a study by Chauhan et al. in which CTG and UA Doppler were compared as delivery room admission tests, CTG was applied to 155 pregnant women in intrapartum period for 30 minutes and UA A/B ratio was simultaneously measured. Results were assessed in terms of intrapartum CTG abnormalities and CS due to FD, umbilical artery PH, Apgar score and NICU requirement. In this study, UA A/B ratio was monitored in correlation with SGA, however sensitivity and specificity were found to be low. Both tests showed poor results in predicting fetal outcomes. Nevertheless, CTG had no advantages over Doppler as a delivery room admission test in this study [19]. Özden et al. compared UA Doppler analysis and CTG in terms of its predictive power of perinatal outcomes. They included 99 term pregnant women with singleton pregnancies. All patients were

assessed with both methods in intrapartum period and were compared as to their umbilical vein blood pH and 1st and 5th minute Apgar scores. Comparison of CTG findings with UA Doppler analysis showed that CTG is much more effective in predicting adverse perinatal outcomes. Sensitivity of the methods were found as 72% versus 36% [20]. In the event of simultaneous use of both tests for detecting adverse perinatal outcomes, sensitivity and NPV decreased but specificity and PPV slightly increased. Researchers recommend the use of UA Doppler analysis in selected high-risk pregnant groups, and point out that neonatal deaths result from not only FD but also from death trauma and low birth weight.

Although the findings of our study are similar with those of the studies in literature, UA Doppler applied in early intrapartum period was not detected to be superior to CTG and AFI. Moreover, the addition of UA Doppler examination to the other tests applied during admission to the delivery room resulted in no improvements in perinatal outcomes.

5.Results

In the present study conducted to assess the comparative effectiveness of UA Doppler examination, CTG and AFI in diagnosis of FD in early intrapartum period, all three methods were applied to the pregnant women on admission to the delivery room, then continuous monitoring with CTG was performed for intrapartum monitoring. Results showed that the effectiveness of UA Doppler examination for diagnosis of FD in early intrapartum period was very low. Furthermore, the addition of UA Doppler analysis to the other tests created no statistical significance in terms of diagnosis of FD. Low positive predictive values resulting from the use of only CTG has increased, although insufficiently, with the addition of AFI to this test. In conclusion, it can be said that CTG + AFI measurement is the most valuable combination as the delivery room admission test in our study.

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