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Comparison of frequency of urinary problems after caesarean section and instrumental vaginal delivery

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ABSTRACT

Objective: The Objective Of The Study Was:

To Determine Frequency Of Post-Partum Urinary Complications Among Women

To Compare Frequency Of Urinary Problems (Ppvd, Uti And Urinary Incontinence) Following Caesarean Section And Instrumental Vaginal Delivery.

Study Design: A Cross-Sectional Study

Setting: Study Was Conducted In Obstetrics And Gynaecology Department, Shaikh Zayed Women Hospital, Larkana.

Duration Of Study: Six Months After The Approval Of Synopsis.

(13-01-2020 To 12-07-2020)

Sampling Technique: Non- Probability Consecutive Sampling

Methodology:All The Female Patients Of Age 18-45 Years Undergoing Delivery Of Fetus Either Through Caesarean Section Or Instrumental Vaginal Delivery And With Any Parity Or Gravidity Were Included. Written Informed Consent For Inclusion In The Study Was Taken From Each Patient. Appropriate Evaluation Was Done In All The Cases And Name, Age, Body Mass Index (Bmi), Gravidity And Parity Was Obtained. Patients Were Divided Into Two Groups. Patients In Group A Were Those Undergoing Cesarean Section While Patients In Group B Were Those Undergoing Instrumental Vaginal Delivery. Mode Of Delivery Was Decided As Per Obstetrical Merits As Decide By Consultant Obstetrician. All The Patients In Both Groups Were Looked In The Follow Up Clinic For Urinary Problems ((Ppvd, Uti And Urinary Incontinence)). All Data Was Analyzed Using Spss Version 24.

Results: A Total Of 138 Patients Were Included In The Study. The Mean Age Of The Patients Was Found To Be 30.73 ± 7.33 Years. Patients Were Further Categorized According To Age Groups Into 2 Groups And Most Were In The Age Range Of 31-45 Years. Also, Most Of The Patients Had Parity ≤3. The Mean Parity Was 2.85 ± 2.07. The Mean Bmi Of Patients Was Found As 29.89 ± 4.20 Kg/M^2. Regarding Gravidity, Mean Gravidity Was 4.38 ± 2.21. Most Of The Patients Had Undergone Ivd. The Most Common Urinary Problem Seen Was Ppvd (N=29), Followed By Urinary Incontinence And Uti. Also, Stratification Of Urinary Problems With Respect To Age, Parity, Bmi And Gravidity Was Done.

Conclusion: Urinary Complications Were Frequently Higher Among Our Patients Who Had Undergone Pregnancy And Childbirth. Therefore, We Suggest That We Need To Educate Our Patients Regarding These Complications And Take Certain Measures To Prevent Them.

Keywords: *Vaginal delivery; instrumental delivery; Cesarean; Mode of delivery; Urinary complications; Urinary tract complications.*

1. INTRODUCTION

Labour and Birth may be associated with pelvic floor damage and cause urinary, fecal or flatal incontinence. Many structural and physical changes take place in pregnancy such as altered function of urinary tract. The mechanism lying behind low urinary tract function can be described in terms of effects of hormones, compressive dysfunction of uterus and structural changes in pelvic support function during pregnancy and delivery (1). Cohort data have suggested that birth by caesarean may reduce this risk. There are many complications which are reported including post-partum voiding dysfunction (PPVD), urinary tract infection (UTI) and urinary incontinence (2, 3). Voiding difficulty and urinary retention are common phenomenon in the immediate post-partum period. Prompt diagnosis and appropriate management of this condition are of paramount importance to ensure a rapid return to normal bladder function. All of these problems occur following vaginal birth and pregnancy as it does has impact on pelvic floor muscles. Among all delivery options, instrumental vaginal delivery (IVD) is the most notorious for these problems as it inserts a lot of pressure on pelvic muscles (4, 5).

In a study, PPVD was observed in 4 of 48 patients undergoing cesarean section (CS) (2) while another study found PPVD in 105 of 338 patients (31.1%) undergoing IVD (6). Urinary incontinence was found in 73/877 (8.3%) patients in CS group (7) while in 55/187 patients (29.4%) undergoing IVD (5). Also UTI was found in 4.6% of 450856 patients undergoing CS (8) while in 337 of 48354 (0.69%) patients of those having IVD (4).

The rationale of the study is that following pregnancy and birth, many complications do occur and among them urological complications are one of the most frequent. Therefore, it is important to determine the frequency of these complications as mothers following a childbirth have many problems and it is important to pre-empt these problems and guide them holistically about these upcoming complications. Following this study, we will be better able to guide these patients regarding these problems and make appropriate measures.

2. MATERIAL AND METHODS

Study design: this was a cross-sectional study

Setting: study was conducted in obstetrics and gynaecology department, Shaikh Zayed women hospital, larkana.

Duration of study: six months after the approval of synopsis.

(13-01-2020 to 12-07-2020)

Sample size: a sample size of 138 patients is calculated taking level of significance as 5%, margin of error as 90% and expected percentage of urinary tract infection incontinence as 4.6% in cs group

Sampling technique: non-probability, consecutive sampling.

Sample selection

Inclusion criteria:

All the female patients of age 18-45 years undergoing delivery of fetus either through caesarean section or instrumental vaginal delivery

Women with any parity or gravidity

Exclusion criteria:

Patients with previous surgery for uterovaginal prolapse or urinary incontinence (medical records) (as these patients have more chances of getting urinary incontinence)

Patients having twin pregnancies (on ultrasound if 2 fetuses are seen) (as these patients have more pelvic floor stress and more chances of complications)

Data collection

After approval from ethical review board and cpsp, all patients fulfilling the criteria were enrolled in the study. Written informed consent for inclusion in the study was taken from each patient. Appropriate evaluation was done in all the cases and name, age, body mass index (bmi), gravidity and parity was obtained. Patients were divided into two groups. Patients in group a were those undergoing cesarean section while patients in group b were those undergoing instrumental vaginal delivery. Mode of delivery was decided as per obstetrical merits as decide by consultant obstetrician. All the patients in both groups were looked in the follow up clinic for urinary problems ((ppvd, uti and urinary incontinence)). All data was recorded on the proforma.

Data analysis procedure

The collected data was analyzed using SPSS version 20. Mean and standard deviation were calculated for quantitative values like age, BMI gravidity and parity. Frequencies and percentages were calculated for qualitative variables like PPVD, UTI and urinary incontinence. Urinary problems frequency was compared in patients of CS and IVD using chi-square test.

3. RESULTS

A total of 138 patients were included in the study. The mean age of the patients was found to be 30.73 ± 7.33 years. Patients were further categorized according to age groups into 2 groups and most were in the age range of 31-45 years. Also, most of the patients had parity ≤3. The mean parity was 2.85 ± 2.07. The mean BMI of patients was found as 29.89 ± 4.20 kg/m^2. Regarding gravidity, mean gravidity was 4.38 ± 2.21. Most of the patients had undergone IVD. All these details are given in table 1.

The most common urinary problem seen was PPVD (n=29), followed by urinary incontinence and UTI (table 2). Urinary complications were compared in two groups (table 3).

TABLE No. 1: Demographic details of patients in this study

Variable	N (%)
Age	
18-30 years	65 (47.10%)
31-45 years	73 (52.89%)
Mean ± SD	30.73 ± 7.33 years
Parity	
≤3	74 (53.62%)
>3	64 (46.37%)
Mean ± SD	2.85 ± 2.07
BMI	
≤30 kg/m^2	56 (40.57%)
>30 kg/m^2	82 (59.42%)
Mean ± SD	29.89 ± 4.20 kg/m^2
Gravidity	
≤4	63 (45.65%)
>4	75 (54.34%)
Mean ± SD	4.38 ± 2.21
Mode of delivery	
Cesarean section	56 (40.57%)
Instrumental vaginal delivery	82 (59.42%)

TABLE No. 2: Frequency of urinary complications

Complications	n	%
Post-partum voiding dysfunction	29	21.01%
Urinary incontinence	18	13.04%
Urinary tract infection	6	4.34%
Total	53	38.40%

TABLE No. 3: Comparison of frequency of urinary complications in two groups

Complications		Groups		P-Value
		CS (n=56)	IVD (n=82)	
Post-partum voiding dysfunction (n=29)	Yes	10	19	0.589
	No	46	63	
Urinary incontinence (n=18)	Yes	6	12	0.501
	No	50	70	
Urinary tract infection (n=6)	Yes	3	3	0.630
	No	53	79	

4. DISCUSSION

The cesarean section (C-section) is the most frequently performed surgical procedure in reproductive-aged women. The C-section rates are increasing worldwide, and Brazil is among the leaders, with 51.9% of Brazilian births using a C-section; this figure reaches 88% in the private health sector. (9)

With rising C-section rates, studies have shown the dangers of this procedure to both the mother and the newborn. A prospective multicenter study with eight Latin American countries showed a higher rate of morbidity in women that opted for a C-section when compared with vaginal delivery on the following events: hysterectomy, length of hospital permanence, and use of antibiotic therapy. For the newborn, the neonatal mortality rate in elective C-sections with cephalic presentations decreased slightly and in those with pelvic presentation reduced significantly. However, C-sections were associated with a higher risk of hospitalization for over seven days in the neonatal ICU and neonatal death after discharge. Later in infancy, the C-section is associated with a higher rate of asthma, allergic rhinitis, atopy, type 1 diabetes mellitus, and celiac disease.(10)

In contrast to the described findings, a Chinese cohort study found no difference between patients that underwent a vaginal delivery or a C-section per request regarding maternal morbidity, and C-section per request was associated with fewer newborn trauma in the moment of delivery, as well as fewer neonatal infection, hypoxic-ischemic encephalopathy, and meconium aspiration. In contrast, vaginal delivery has been associated with fewer neonatal respiratory disorders. The results for operatory vaginal delivery and intrapartum C-sections were worse than those for vaginal delivery and on-demand C-section.(11)

Pregnancy and childbirth are risk factors for the development of lower urinary tract symptoms (LUTS). LUTS are divided into three groups: storage, voiding, and post-micturition symptoms. In the past few decades, research on LUTS has mostly only focused on urinary incontinence (UI). In addition to UI, other LUTS are common during pregnancy. LUTS during and after pregnancy have attracted substantial attention in recent years because of their high prevalence and detrimental effects on health-related quality of life. Several studies around the world have estimated the prevalence of LUTS during and after pregnancy, but there have been no reports on the prevalence of LUTS during and after pregnancy in mainland China. Epidemiological studies performed in many countries have reported that the prevalence of all types of LUTS increases over the course of pregnancy (12, 13). LUTS have commonly been reported in the third trimester. In a study conducted in Taiwan with 1501 primiparous women, the most commonly reported LUTS regardless of trimester were nocturia and frequency, which were as frequent as 51.5% and 40.3%, respectively, during the third trimester (14). The incidence of fre- quency during the third trimester ranged from 79.8% to 82.6% in a study of Dutch primiparous women. Wesnes et al. (15)reported that SUI (30.9%) was the most common type of UI, which is consistent with the findings of this study. Hormonal effects and mechanical changes are considered causal factors of LUTS during pregnancy. The prevalence of LUTS was significantly higher during than after pregnancy, and storage LUTS were more frequent than voiding LUTS. Consistent with previous studies, the most commonly reported LUTS in this study during pregnancy were nocturia and frequency.

After childbirth, the prevalence of frequency and urgency declined rapidly, indicating that these symptoms are part of normal pregnancy, which is in agreement with a previous study.(16) However, a cohort study lasting 12 years after the first delivery showed that the incidence and remission of LUTS fluctuate and that the overall prevalence of LUTS increases over the long term. Therefore, a long-term prospective study is needed to clarify the relationship between pregnancy and LUTS, as well as the incidence and remission of LUTS after delivery. (17)

Few studies have been conducted to evaluate the effects of LUTS on health-related quality of life in women in the third trimester and at 6 weeks postpartum. All individual LUTS cause bother, and moderate or severe bother was more common during late pregnancy than at 6 weeks after delivery in the present study. In addition, LUTS, which can cause moderate to

severe bother in the third trimester and after delivery, can vary. In the present study, storage symptoms were more likely to cause moderate or severe bother than voiding symptoms during pregnancy, especially nocturia or frequency. This finding is consistent with those of a prior study conducted by van Brummen et al. [16] showing a much higher prevalence of bothersome frequency symptoms than other urogenital symptoms during pregnancy. After pregnancy, voiding symptoms were more likely to cause moderate or severe bother.

In the literature, recent studies involving large populations have shown the protective effect of CS on the pelvic floor. VD is an independent risk factor for damage to the pelvic floor muscles after delivery. In the process of VD, the fetus passing through the soft birth canal can directly damage the pelvic floor muscles. In the present study, the prevalence of each individual LUTS was much lower in the CS than VD group 6 weeks after delivery. This finding is consistent with previous studies in which, compared with elective CS, all aspects of lower urinary tract dysfunction increased after a vaginal delivery. Studies in the literature have reported significant differences in symptoms for up to 6 months after delivery between VD and CS, whereas there were no significant differences between the two delivery modes at the end of the 1-year follow-up (18). Mac- Arthur et al.[19] reported that the risk of UI was reduced only by CS at 12 years after delivery in a longitudinal study of 3763 women. In the present study, the prevalence of LUTS was lower for the CS than VD group 6 weeks after delivery, and the results of logistic regression analysis indicate a trend of CS being protective against storage and voiding LUTS. The postpartum voiding LUTS appeared to be due to injury to the pudendal nerve during the birth process. Prolonged pudendal nerve terminal motor latency has been demonstrated after delivery and can last for 2 to 3 months postpartum. Women with a low BMI during late pregnancy may have been suffering from malnutrition during pregnancy, and malnutrition has an adverse effect on pudendal nerve recovery, which may result in voiding LUTS.

There were also some limitations of this study. This was a single center study. For this type of study, authors emphasize to conduct a multicenteric study so as to minimize the bias.

5. CONCLUSION

Urinary complications were frequently higher among our patients who had undergone pregnancy and childbirth. Therefore, we suggest that we need to educate our patients regarding these complications and take certain measures to prevent them..

REFERENCES

1. Noor R, Neelam H, Bashir MS. Mode of delivery and pelvic floor disorder. Rawal Med J 2017;42(4):503-6.
2. Hazem AM, Ahmed AB, Ghadeer AS. Incidence of early postpartum voiding dysfunction in primiparae: comparison between vaginal delivery and cesarean section. LUTS. 2014;6(2):103-6.
3. Sharif S, Gondal MJI, Kamboh SM, Adeel M, Qamar M, Chaudhry A, et al. Frequency of urinary incontinence in pregnant multigravida from second trimester up to the delivery. ANNALS. 2017;23(2):1-4.
4. Axelsson D, Brynhildsen J, Blomberg M. Postpartum infection in relation to maternal characteristics, obstetric interventions and complications. J Perinat Med. 2018;46(3):271-8.
5. Wesnes SL, Hannestad Y, Rortveit G. Delivery parameters, neonatal parameters and incidence of urinary incontinence six months postpartum: a cohort study. Acta Obstet Gynecol Scand. 2017;96(10):1214-22.
6. Pifarotti P, Gargasole C, Folcini C, Gattei U, Nieddu E, Sofi G, et al. Acute post-partum urinary retention: analysis of risk factors, a case-control study. Arch Gynecol Obstet. 2014;289(6):1249-53.
7. Hazem AM, Ahmed AB, Ghadeer AS. Incidence of early postpartum voiding dysfunction in primiparae: comparison between vaginal delivery and cesarean section. LUTS: Lower Urinary Tract Symptoms. 2014;6(2):103-6.
8. Gundersen TD, Krebs L, Loekkegaard ECL, Rasmussen SC, Glavind J, Clausen TD. Postpartum urinary tract infection by mode of delivery: a Danish nationwide cohort study. BMJ open. 2018;8(3):e018479.
9. Dolezal P, Zahumensky J, Otapkova P, Papcun P, Krizko M, Jr. Covert postpartum urinary retention. Bratisl Lek Listy. 2019;120(9):673-5.
10. Fairthorne J, Bourke J, O'Donnell M, Wong K, de Klerk N, Llewellyn G, et al. Pregnancy and birth outcomes of mothers with intellectual disability and their infants: Advocacy needed to improve well-being. Disabil Health J. 2019:100871.
11. Kutluev MM, Safiullin RI. [Experience of using fosfomycin for the treatment of acute uncomplicated cystitis in women in postpartum period]. Urologiia. 2019(5):27-30.
12. Paladine HL, Blenning CE, Strangas Y. Postpartum Care: An Approach to the Fourth Trimester. Am Fam Physician. 2019;100(8):485-91.
13. Yuksel Y, Yuksel D, Yucetin L, Erbis H, Sarier M, Karatas O, et al. Use of Tacrolimus During Pregnancy After Kidney Transplantaion. Transplant Proc. 2019;51(7):2361-6.
14. Liang C-C, Chang S-D, Lin S-J, Lin Y-J. Lower urinary tract symptoms in primiparous women before and during

pregnancy. Arch Gynecol Obstet. 2012;285(5):1205-10.

15. Wesnes SL, Rortveit G, Bø K, Hunskaar S. Urinary incontinence during pregnancy. Obstet Gynecol. 2007;109(4):922-8.

16. Van Brummen HJ, Bruinse HW, Van De Pol G, Heintz APM, Van Der Vaart CH. Bothersome lower urinary tract symptoms 1 year after first delivery: prevalence and the effect of childbirth. BJU Int. 2006;98(1):89-95.

17. Zhang L, Zhu L, Xu T, Lang J, Li Z, Gong J, et al. A population-based survey of the prevalence, potential risk factors, and symptom-specific bother of lower urinary tract symptoms in adult Chinese women. Eur Urol. 2015;68(1):97-112.

18. Hantoushzadeh S, Javadian P, Shariat M, Salmanian B, Ghazizadeh S, Aghssa M. Stress urinary incontinence: pre-pregnancy history and effects of mode of delivery on its postpartum persistency. International urogynecology journal. 2011;22(6):651-5.

19. MacArthur C, Wilson D, Herbison P, Lancashire R, Hagen S, Toozs-Hobson P, et al. Urinary incontinence persisting after childbirth: extent, delivery history, and effects in a 12–year longitudinal cohort study. BJOG. 2016;123(6):1022-9.