





ORIGINAL ARTICLE

GESTATIONAL HISTORY OF WOMEN WITH URINARY INCONTINENCE

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ABSTRACT

Objective: to analyze the relationship between gestational history and urinary incontinence in women.

Method: an exploratory, descriptive, cross-sectional and quantitative study, conducted with 227 women with urinary incontinence treated in a reference outpatient unit in the South of Brazil, identifying gestational history and incontinence subtype. To analyze the association, the chi-square and Cramér's V tests were used, with a 5% significance level.

Results: mixed urinary incontinence (87.2%; n=198) was predominant, with 89% for two or more pregnancies, and vaginal deliveries (two or more) occurred more frequently (71.4%) than cesarean sections (14.5%) for two or more pregnancies; 64.3% underwent episiotomy. There was no statistical significance between the incontinence subtypes and the gestational history variables.

Conclusion: mixed urinary incontinence was the most present subtype. Multiparity and vaginal delivery characterize this group. The importance of pelvic floor preparation in the peri-gestational period is shown, minimizing the impact of incontinence in this population.

DESCRIPTORS: Urinary Incontinence; Pregnancy; Parity; Pelvic Diaphragm; Women's Health.

HISTORIAL GESTACIONAL DE MUJERES CON INCONTINENCIA URINARIA

RESUMEN:

Objetivo: analizar la relación entre historia gestacional e incontinencia urinaria en mujeres. **Método:** estudio descriptivo exploratorio, de corte cuantitativo, con 227 mujeres con incontinencia urinaria atendidas en una clínica de referencia en el sur de Brasil, habiéndose identificado antecedentes gestacionales y subtipo de incontinencia. Para el análisis de asociación se utilizaron las pruebas de Chi-cuadrado y V de Cramer, con un nivel de significancia del 5%. **Resultados:** predominó la incontinencia urinaria mixta (87,2%; n = 198), con 89% para dos o más embarazos, y el parto vaginal (dos o más) fue más frecuente (71,4%) que la cesárea (14,5%) para dos o más partos, el 64,3% recibió episiotomía. No hubo significación estadística entre los subtipos de incontinencia y las variables del historial gestacional. **Conclusión:** la incontinencia urinaria mixta fue el subtipo más común. La multiparidad y el parto vaginal caracterizaron a este grupo. Se demuestra la importancia de preparar el suelo pélvico en el período perigestacional para minimizar el impacto de la incontinencia en esta población.

DESCRIPTORES: Incontinencia Urinaria; Embarazo; Paridad; Diafragma pélvico; Salud de la Mujer.

INTRODUCTION

The International Continence Society defines urinary incontinence (UI) as any type of involuntary urine loss. It is distributed into three subtypes: stress urinary incontinence (SUI), when urine leaks by actions that require effort, sneezing or coughing; urgency urinary incontinence (UUI), when involuntary loss is accompanied or immediately preceded by an urgency to urinate; and, in cases presenting symptoms of both previous subtypes, the term mixed urinary incontinence (MUI) is used⁽¹⁾.

Some risk factors for the possible development of UI are as follows: diabetes mellitus, fecal incontinence, pelvic floor surgery, smoking, and overweight. In addition, especially women end up being more affected, since parity, type of delivery, use of forceps, menopause, and hysterectomy are also associated with an increase of the risk of developing this type of condition⁽²⁻⁴⁾.

UI prevalence in women can differ across studies, and a 5% to 69% variation can be found; this is due to several factors, such as differences in the definitions used for UI, the characteristics of the study population, and the cultural differences among the women that present such complaint⁽⁵⁾.

A number of research studies point out that pregnancy and delivery increase UI frequency, resulting from the modifications in the pelvic floor (PF), caused even if partially by these factors⁽⁶⁻⁷⁾. The physiological processes that occur during this period, as well as the stretching and overload on these tissues, result in the reduction of the PF muscle function and of its tissue properties, which often end up being irreversible, thus resulting in a change of the urethral support and continence mechanism. Even so, there is not enough evidence to support that choosing the cesarean section would reduce this impact on the muscles and minimize the risk of developing UI⁽⁸⁻⁹⁾.

This article is part of a larger research study that investigated intestinal constipation in women with urinary incontinence. Faced with a considerable sample for the collection period, the scarcity of national epidemiological data, and the citation of several authors about gestational history as a risk factor for UI, it was decided to analyze the gestational history of this group of women⁽¹⁰⁻¹¹⁾, aiming to understand its relationship with the incontinence subtype presented. Therefore, the objective of this study was to analyze the relationship of gestational history with urinary incontinence in women.

METHOD

This exploratory, descriptive and cross-sectional study with a quantitative approach had its data collection conducted from September 2019 to January 2020, in a urinary dysfunctions outpatient clinic of a public hospital in the South region of the country.

A total of 227 women participated in the study after reading and signing the Free and Informed Consent Form. The inclusion criteria were the following: being over 18 years old, being treated in the outpatient clinic, and presenting UI symptoms. The exclusion criteria were as follows: presence of anatomical changes and/or neurological dysfunctions that could lead to UI.

Data collection occurred in one of the outpatient rooms, through an individual interview applied by a single evaluator that filled in all data digitally. The instrument used was elaborated by the authors for this purpose, aiming to identify the general health variables and promote a sociodemographic collection that could characterize the

population. The instrument also featured specific questions regarding the characteristics of urinary incontinence, distributed into three subtypes (SUI, UUI, and MUI), by means of selecting specific phrases that represented the effort and urgency symptoms distinctively.

UI was classified through the answers given by the participants and, in the situation where there were effort and urgency symptoms, the classification was mixed. The questions were elaborated by a compilation of instruments already validated, such as the ICIQ-SF (International Consultation on Incontinence Questionnaire - Short Form), and complemented by symptoms that identified the most common types of UI, as described in the consensus for term standardization of the International Continence Society⁽¹²⁾. The health variables chosen for the analyses informed characteristics of the participant's gestational history.

The statistical analysis was performed in the SPSS Statistics program, version 25.0, and the significance level adopted was 5%. For the description of the sociodemographic and gestational variables, as well as of the type of UI, absolute and relative frequency and mean (\pm SD) measures were used. The chi-square test was used for analyzing the association of the episiotomy variable with the UI subtypes. For the variables that did not meet the requirements for the use of the chi-square test (pregnancies, abortion, cesarean and vaginal delivery), Cramér's V test was used.

The study was submitted to the Committee of Ethics in Research with Human Beings and approved under opinion number 3,575,829.

RESULTS

The study participants were 227 women with a mean age of 60.33 ± 12.26 years old. The distribution of the UI types found in this population showed prevalence of MUI, in 198 (87.2%) cases, according to Table 1.

Table 1 – Distribution of the urinary incontinence subtypes in the study population (n=227). Curitiba, PR, Brazil, 2020

Urinary incontinence subtype	n	(%)
Stress urinary incontinence	17	7,5
Urgency urinary incontinence	12	5,3
Mixed urinary incontinence	198	87,2
Total	227	100

Source: The authors (2020)

Schooling level was predominantly low for the study population, with 135 (59.5%) corresponding to elementary school and 10 (4.4%) for illiteracy. Regarding work activities, the greatest percentage was that of housewives, 138 (60.8%). In Table 2, it can be observed that both the distribution of elementary school and household chores showed to be similar across the UI subtypes.

Table 2 – Sociodemographic characteristics and gestational profile of the study population and distribution according to the UI subtypes (n=227). Curitiba, PR, Brazil, 2020

Variables	Total (n=227) (% and mean)	SUI (n=17) (% and mean)	UUI (n=12) (% and mean)	MUI (n=198) (% and mean)
Age	60,33 (±12,26)	63,29 (±10,35)	60,33 (±14,46)	60,07 (±12,3)
Schooling				
Illiterate	10 (4,4)	-	1 (8,3)	9 (4,5)
Elementary school	135 (59,5)	9 (52,9)	6 (50)	120 (60,6)
High school	65 (28,6)	8 (47,1)	3 (25)	54 (27,3)
Higher education	17 (7,5)	-	2 (16,7)	15 (7,6)
Work activity				
Housewife	138 (60,8)	12 (70,6)	9 (75)	117 (59,1)
Retired	5 (2,2)	-	1 (8,3)	4 (2)
Paid work	84 (37)	5 (29,4)	2 (16,7)	77 (38,9)
No. of pregnancies				
0	8 (3,5)	-	1 (12,5)	7 (87,5)
1	17 (7,5)	2 (11,8)	2 (5,9)	14 (82,4)
≥2	202 (89)	15 (7,4)	10 (5)	177 (87,6)
Vaginal deliveries				
0	39 (17,2)	1 (2,6)	1 (2,6)	37 (94,9)
1	26 (11,5)	2 (7,7)	3 (11,5)	21 (80,8)
≥2	162 (71,4)	14 (8,6)	8 (4,9)	140 (86,4)
Cesarean sections				
0	122 (53,7)	10 (8,2)	8 (6,6)	104 (85,2)
1	72 (31,7)	6 (8,3)	3 (4,2)	63 (87,5)
≥2	33 (14,5)	1 (3)	1 (3)	31 (93,9)
Miscarriages				
0	132 (58,1)	11 (8,3)	5 (3,8)	116 (87,9)
1	67 (9,5)	5 (7,5)	4 (6)	58 (86,6)
≥2	28 (12,3)	1 (3,6)	3 (10,7)	24 (85,7)
Episiotomy				
Yes	146 (64,3)	12 (8,2)	8 (5,5)	126 (86,3)
Forceps				
Yes	39 (17,2)	2 (11,8)	-	37 (18,7)

SUI: Stress Urinary Incontinence; UUI: Urgency Urinary Incontinence; MUI: Mixed Urinary Incontinence.

Source: The authors (2020)

Regarding the gestational profile of the women evaluated, number of pregnancies ≥ 2 was the most prevalent across the groups, corresponding to 89% (n=202) of the sample. Regarding parity, vaginal delivery was present with a total of 188 (82,9%) for cases of 1 or ≥ 2 deliveries in the population under study; a higher value than for the cesarean sections, which was 105 (46.2%) for 1 or ≥ 2 deliveries.

The episiotomy and use of forceps variables presented incidence values of 146 (64.3%) and 39 (17.2%), respectively, considering that only the UUI group reported not having used forceps during delivery. In the studied population, 58.1% (n=132) of the women did not present miscarriages.

Through the correlation test, the gestational history variables (No. of pregnancies, vaginal deliveries, cesarean sections, miscarriages, and episiotomy) were evaluated with the three UI subtypes. No statistical significance was found for any of those crossings (Table 3).

Table 3 – Correlation tests between the variables of the three UI subtypes (dependent variables) and the gestational history variables (independent variables). Curitiba, PR, Brazil, 2020

Variables	R correlation	p-value
Episiotomy	0,253	>0,05*
No. of pregnancies	0,089	>0,05+
Miscarriages	0,123	>0,05+
Vaginal deliveries	0,148	>0,05+
Cesarean sections	0,093	>0.05+

Correlation tests: Chi-square test*, Cramér's V test+, ($p > 0.05$ not significant)

Source: The authors (2020)

DISCUSSION

Among the three UI subtypes, the most prevalent was MUI, with a total of 198 (87.2%) women in this condition, followed by SUI with 17 (7.5%) and by UUI with 12 (5.3%). The mean age of the study population was 60.33 (± 12.26) years old. The prevalence of MUI can justify the impossibility to relate the gestational profile variable with effort or urgency symptoms, as MUI indicates the presence of symptoms from the other two subtypes, hindering analysis.

According to the research studies, age can affect the distribution of the UI types, and the most common ones observed among middle-aged women are MUI and UUI⁽¹³⁾ whereas, for the younger women, SUI is the most prevalent^(1,14-15). These findings are in accordance with those from studies carried out with young individuals in their twenties, whose most prevalent UI type was stress urinary incontinence^(9,16).

A number of research studies showed that women who presented UI symptoms during the gestational period had a higher mean age when compared to the continent ones, often resulting from a natural aging process together with the pressure exerted on the PF during the pregnancy cycle⁽¹⁷⁻¹⁹⁾.

A study with 420 women who presented UI, conducted in the United States, found prevalence of MUI (57%), UUI (20%), and SUI (17%); the same distribution type was found in a research study carried out in Thailand, corroborating the findings of this study⁽²⁰⁻²¹⁾.

Some authors report that, during pregnancy, SUI and MUI are more commonly found than UUI, in an isolated manner. Increase in body weight and previous miscarriages end up becoming contributing factors for the onset of SUI during this period^(18,22).

Other studies found similar results about the socio-educational level, indicating low schooling⁽²³⁻²⁴⁾. The high percentage of housewives in this study, 138 (60.8%), was also observed in other studies^(3,21).

The socio-educational level of the sample, demonstrated by the predominant low schooling and occupation, can be a complicating factor in managing the health condition, since the first-line treatment for UI are behavioral measures that require cognitive ability to understand the need and pursue the goals established between the professional and the patient. Some authors state that these socio-educational and economic conditions are factors that have a major impact on UI development^(13,25).

Observing the number of pregnancies variable, in this study there were prevalence values of 202 (89%) for ≥ 2 and of 17 (7.5%) for one pregnancy, with eight (3.%) women who never got pregnant. A study conducted in England comments that, in relation to parity, 36% of the participants had two children, 11% had three, and 4% had four, the majority being through vaginal deliveries, corroborating with the profile found in this study⁽²⁶⁾. Similar results were found in another research study carried out in Belgium, whose parity mean was 2 ± 1.4 , and with more than 70% of the participants having had vaginal deliveries⁽¹⁵⁾.

In most of the research studies, multiparity ends up being related as a facilitating factor for the development of UI, both during and after the gestational period, mainly linked to vaginal deliveries and to the labor process. This type of profile can be observed in this study, where most of these women had a considerable number of vaginal deliveries ≥ 2 , 162 (71.4%); and, of these, 146 (64.3%) underwent episiotomy procedures. This profile presented a higher incidence value for women with MUI; however, this result can be linked to the large number of women with this type of UI in this study, in addition to the age factor, which increases the probability of presenting effort and urgency symptoms simultaneously.

Some studies point out controversial results in relation to episiotomy and indicated that, when associated with vaginal delivery, it demonstrated a lesser lesion on the PF tissue after delivery; however, women who were not subjected to this procedure during vaginal delivery could have greater probability of laceration on these supporting tissues⁽¹³⁾. A punctual data found in another study describes that, in its population, almost all women had vaginal deliveries and were subjected to episiotomy, assuming that the PF strength found in this group was lower if compared to the cesarean sections, most likely influenced by a lesion on the PF, caused by the episiotomy trauma, a fact that was also observed in this study⁽²⁷⁾.

A study carried out in 2018 indicates the presence of multiparity in 62 (57.9%) women presenting associated UI, and episiotomy was a resource used in 144 (55.4%) women of the sample⁽⁵⁾. They also mention that parity is a major risk factor for developing UI in the gestational period and that this incidence increases in women who have already given birth, this also being an important factor in the onset of UI after delivery^(6,17).

A number of studies state that vaginal delivery has been reported as the main variable associated with the presence of UI and that these issues would be caused by the stretching and weakening of the PF region, resulting from labor and the passage of the fetus head through the vaginal canal^(9,25).

Other studies seek to observe the influence of the delivery type on UI, and that the cesarean section would be a possible protective factor against the onset of UI after

delivery. However, this evidence is still not strong enough, mainly if the cesarean section is preceded by labor, where the pressure condition on the PF structures would occur in the same fashion; so, the least aggressive situation for the PF would happen in a planned cesarean section, therefore avoiding labor^(2,27-28). It was observed in the literature that, 12 months after delivery, the UI symptoms were more prevalent in the vaginal delivery group in relation to the cesarean sections⁽²⁹⁾.

In this study, the cesarean section rate was considerably lower (n=105, 14.5%) than that of the vaginal deliveries, data similar to those of other studies that found vaginal delivery as the most recurrent among the evaluated women⁽³⁰⁾.

Therefore, it is important to consider the gestational history variables together with the presence of each UI type in this population, in order to better understand the factors that led to distress by these symptoms, and how the impact on the PF was developed, for a better approach to treatment. In addition to affecting women's physical health, it is observed that the UI condition ends up generating negative repercussions in social, work and religious life, sexual relations, and psychological health, directly affecting quality of life and, most often, they stop looking for guidance due to lack of knowledge or constraint^(3,27).

As limitations, not using a complete validated instrument but the adaptation and compilation of questions from different frameworks can be mentioned, which hinders replicating and comparing the study. In addition, it can be considered that the sample might have been insufficient to reach the associations between variables related to gestational factors with the UI types. It is worth considering that objective tests or diagnosis exams were not applied to verify the characteristic of urinary loss, thus being subjected to the patients' memory bias and understanding.

CONCLUSION

The sample of women with urinary incontinence studied was predominantly aged, with elementary school level, and performing household chores. Most of them presented more than two pregnancies and vaginal deliveries. The most commonly found incontinence subtype was MUI.

There was no statistically significant association between the variables related to the gestational profile and the urinary incontinence subtypes under study. More studies are necessary to confirm these data and, mainly, to evaluate other factors associated with delivery and their impact on the pelvic floor, which can contribute to the development of urinary incontinence.

With the findings of this study, it is expected to shed light on gestational history as a risk factor for urinary incontinences in order to stimulate the preparation of the pelvic floor and thus minimize the impact of urinary incontinence in this population.

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Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - GMA, GNS, ADLM
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Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - BIT

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