

# Urinary disorders during pregnancy and postpartum: our experience

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## Summary

The changes that take place in the pelvic region during birth can give rise to alterations in the genitourinary system which are at the basis of pathologies such as stress urinary incontinence (SUI). The occurrence of this condition has been correlated to a variety of factors including neonatal birth weight and obesity.

We studied 120 women, 60 nulliparae, 40 primiparae and 20 multiparae who were divided into three groups on the basis of urinary problems experienced. The first group consisted of women who had reported urinary incontinence during pregnancy (76%). This was found to be significantly correlated to the number of pregnancies and weight gained; 18% of this group reported IUS during the postpartum period. The second group consisted of women who did not experience any urinary incontinence during the pregnancy or postpartum while the third group consisted of women who, although not experiencing any urinary problems during pregnancy, reported urinary incontinence in the postpartum period.

These data, although only part of an initial study, reveal a consistent frequency of urinary incontinence in pregnancy and postpartum, and highlight risk factors.

**Key words:** Pregnancy; Postpartum; Urinary incontinence; Birth.

## Introduction

During pregnancy and birth, important physiological changes occur in the genitourinary system which may in some cases give rise to a series of pathologies such as urinary or faecal incontinence, difficulty in emptying the bladder or genital prolapse [1].

Data from published literature indicates that stress urinary incontinence (SUI) occurs in 20-65% of women during pregnancy. Figures for transitory incontinence postpartum range between 24-30% while permanent incontinence has been registered in 3-10% of women. It is, in fact, agreed that between 5% and 10% of the women who complain of urinary incontinence during pregnancy continue to suffer from this complaint postpartum.

Functional problems at the perineal level are known to constitute a risk factor for urinary incontinence and genital prolapse: vaginal birth, heavy physical work, chronic coughing and rapid weight loss also constitute risk factors for SUI.

The alterations that occur during delivery, even if apparently normal, can be of an anatomical or functional nature, the former being fewer due to a fall in the number of instrumental vaginal births. Pathological events that can occur during delivery include straining of the perineal muscles with resulting microlesions, distortion of the stomach elevator muscles with successive reparative fibrosis, and pathological stretching of the ligaments and fibrous structures of the perineum. All of these lead to modifications of the pelvic floor, the perineal connective tissue and the statics and dynamics of the pelvis with a

series of correlated problems that do not always clear up after birth [3].

The frequency of urinary incontinence in women who give birth spontaneously does not differ, according to some authors, from the frequency observed in women who undergo cesarean section [4]. However some authors have registered higher frequency in the latter group (34% vs 21%) [5]. Clearly a lot depends on how an instrumental birth develops: the longer and more invasive it is, the higher the probability that urinary structures will be compromised.

Women who undergo cesarean are not affected by the above-mentioned anatomical and functional alterations and the frequency of SUI in the postpartum period is minimal. This is due to lack of involvement of the pelvic structures, typical of a vaginal birth [6]. A cesarean, in this sense, can be considered a safeguard against SUI.

Urinary incontinence (UI) has been found to be more frequent in multiparous women and in women who have given birth to a child weighing more than 4 kg. In fact, the bigger the fetus that passes through the birth canal, the greater the dilation of the urogenital hiatus with a marked wearing of the muscle structures [7]. Other risk factors for UI exist including hypermobility of the vesical neck before birth; SUI is higher in the postpartum period in women presenting this alteration. Some authors believe that SUI occurs more frequently in women with low urethral resistance and urethral-abdominal deficit in the first trimester [8] and hence with intrinsically weak musculature for the closure of the urethra and the periurethral support tissue. According to this theory pregnancy does not constitute a risk factor for SUI in women without congenital deficits of the pelvic and urinary system.

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Obesity has also been linked to a higher frequency of postpartum incontinence and weight monitoring is clearly of benefit in these cases. In fact it has been shown that both SUI and urination disorders are more frequent in overweight women and can persist for six to 18 months after birth [9].

Lastly, it has been suggested that epidural anesthesia might in some way protect a woman from SUI in the postpartum period but various studies have indicated that there is no link between the two events [10].

During gestation and birth therefore, the body of a woman undergoes a series of changes: increased blood flow and renal glomerular filtrate perfusion, a slow but progressive increase in the volume of the uterus, hormone levels, anatomical and functional modifications of the pelvic region, and the adaptation of the birth canal during the expulsion of the fetus. All of these can alter the anatomical and functional state of the nullipara and determine, in many cases, a range of disturbances at a genital and urinal level.

### Patients and Methods

One hundred and twenty women took part in the study which ran from December 2003 to June 2004 at the Obstetric and Gynecological Department of Avezzano Hospital. The women were aged between 22 and 39 (mean age  $31 \pm 5$  months); 60 were nulliparae, 40 primiparae and 20 multiparae. All of the women were interviewed: questions covered urinary symptoms such as leaking, SUI, urge incontinence, etc., and a careful record of delivery was made (use of the Kristeller and/or Credè manoeuvre, the need for episiotomy, the use of forceps, lacerations, etc.) along with the birth weight of the child.

All of the participants in the study were contacted 30 days after giving birth and questioned carefully about any persistent urinary problems, the resumption of micturition and opening of the bowels after birth, and the presence of any anal-rectal pathologies such as hemorrhoids or fissures. Prepregnancy weight, end-of-term weight, and weight 30 days postpartum were also recorded.

### Results

Data from the initial interview revealed that 91 women (76%) had experienced some kind of urinal or gynecological problem during pregnancy; 29 women (24%) on the other hand had not experienced any problems of this nature. SUI was prevalent in the group of women who experienced urinal or gynecological problems (65%) while urge incontinence was recorded for the remaining 35%: in 15% of these cases urge incontinence was linked to urinary infections, in 10% to constipation and in 5% to leaking.

A correlation emerged between the number of pregnancies and urinary disturbances: 40 women were nulliparous (44% of the total, 66% of the nulliparous group); 36 were primiparous (40 % of the total, 90% of the primiparous group); 15 were multiparous (16% of the total, 75% of the multiparous group). However a significant correlation did not emerge between the birth weight of previous children and urinary disturbances during pregnancy.

On the basis of weight gained during pregnancy the women were divided into four groups:

- A) less than 10 Kg (12 women);
- B) between 10 and 15 kg (44 women);
- C) between 15 and 20 kg (50 women);
- D) over 20 kg (14 women).

Sixty-three percent of the women who had reported urinary disturbances had put on more than 15 kg (5 were in group A, 29 in group B, 48 in group C and 9 in group D).

An increase in the frequency of urination (4 to 15 times a day with an average of 8) compared to pre-pregnancy was reported by all of the women interviewed as well as the need to urinate at night (from 3 to 4 times).

The data from the second interview also proved interesting. Seventeen of the 91 women who reported urinary disturbances during pregnancy stated that these disturbances cleared up after the birth. Seventy-two percent of the urinary problems reported postpartum were SUI whereas the remaining 28% were associated with urge incontinence, in 6% of the cases, with leaking. Of this group 87% also reported ano-rectal problems in the form of fissures and/or hemorrhoids. This last piece of data was also confirmed by the slow recovery of intestinal function reported by 54 women in this group, 39% of whom had to resort to laxatives.

Sixty-four percent of the women affected by urinary disturbances had had a spontaneous vaginal birth. However even some of the women who had undergone a cesarean reported urinary disturbances.

No significant relationship emerged between urinary disturbances and episiotomy (96% of the women who had a vaginal birth underwent episiotomy and episiorraphy) whereas 13 of the 15 women who underwent an obstetric manoeuvre (mainly the Kristeller manoeuvre), reported urogynecological problems.

All of the women in the study had lost 5 kg or less 30 days postpartum and hence we were unable to draw any statistically significant conclusions from this data. However 61 women (83%) who had reported urinary disturbances had given birth to children weighing more than 3.5 kg (68% to children weighing more than 4 kg).

Frequency of urination fell in the postpartum period (3 to 4 times a day) and the need to urinate during the night all but disappeared (only 15% of the entire group reported night time urination).

A third group of women who reported urinary disturbances emerged after the second interview. This group consisted of six of the 29 women who had not suffered any urinary disturbances during pregnancy. The symptoms reported were similar to the other two groups; all of the women had had a vaginal birth and all had given birth to children weighing more than 4 kg. Furthermore all had undergone an episiotomy, episiorraphy, obstetric manoeuvres and suffered lacerations.

### Discussion and Conclusions

Our study shows how widespread urinary disturbances are in pregnancy and in particular stress urinary incontinence. In addition we found that multiparous women are

more vulnerable to this condition than nulliparous women, which is in agreement with other published literature indicating that the higher the number of pregnancies the greater the risk of urinary pathologies during and after birth. Weight gain in pregnancy also emerged as an important risk factor; 63% of the women who had complained of urinary disturbances had gained more than 15 kg during the pregnancy.

We also found that 18% of the women who had suffered urinary disturbances during pregnancy continued to do so in the postpartum period: the type of problem was mainly SUI and the majority of women had had a vaginal delivery. Anal and/or rectal problems (fissures and hemorrhoids) were also frequent in the postpartum period as was the difficulty recorded in resuming regular intestinal movement. Interestingly, women who only complained of urinary disturbances in the postpartum period had all given birth to children over 3.5 kg which shows how significant a role neonatal weight plays in the generation of postpartum urinary disturbances.

Alterations of the pelvic floor and structures connected to it can be prevented or reduced by identifying risk factors linked to pregnancy and the birth process itself, such as the presence of a large fetus and by monitoring maternal weight gain, supporting perineal structures adequately, making sure that the woman does not push before full dilation and performing episiotomy and episiorraphy correctly given that episiotomy prevents excessive perineal trauma [11].

Women at risk due to an increased anal-vulva distance, large vulva opening, abnormalities in episiotomic scar tissue, genital prolapse, etc., can attend courses aimed at increasing the contractile force of the elevator muscles of the anus capable of compensating the perineal deficit produced during labor. This type of exercise should start six to eight weeks after birth so as to allow the mother time to look after her child in the immediate period after birth as well as to allow the perineum to return to its normal tone, thus avoiding increasing abdominal force without achieving recovery in tone of the elements that produce a counterforce. Various studies have shown that perineal massage, on the other hand, has little effect on preventing urinary disturbances in the postpartum period [12].

Currently prevention of SUI lies with a series of programs involving the woman during pregnancy, labor and the postpartum period.

In conclusion, this study, although only an initial approach to urinary disturbances in pregnancy, has nevertheless shown a consistent and widespread frequency of stress urinary incontinence during pregnancy and postpartum.

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