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Interventions for the prevention of urinary incontinence during prenatal care: An Integrative review

Karine de Castro Bezerra[1], Suzy Ramos Rocha[1], Mônica Oliveira Batista Oriá[1], Camila Teixeira Moreira Vasconcelos[1], Dayana Maia Sabóia[2], Tamires Daianny Araújo de Oliveira[1]

1 Nursing Department of Federal University of Ceará
2 Maternity School Assis Chateubriand

ABSTRACT

Aim: to evaluate the evidence available in literature on interventions to prevent urinary incontinence in pregnant women during prenatal care. **Method:** an integrative literature review (RI) conducted in October 2014 using the LILACS, MEDLINE, CINAHL, and Cochrane databases. Eleven articles were included in the sample. **Results:** All of the articles were published in English; seven of them were identified in the PubMed database, and four in Cochrane. Most of this work used cognitive and behavioral interventions, with the training of the musculature of the pelvic floor as a main treatment for preventing and treating urinary incontinence during pregnancy. **Conclusion:** the results can work jointly to improve the care of women during pregnancy and childbirth.

Descriptors: Urinary Incontinence; Antenatal Care; Nursing.

INTRODUCTION

Female Urinary incontinence (UI) is a major public health problem, due to its' high prevalence and the physical, psychological and social impact on the lives of women[1,2]. In 2012, the International Continence Society committee (ICS) updated the terminology and definitions of lower urinary tract dysfunction. The ICS now defines UI as the involuntary loss of urine, the most common form in women being stress urinary incontinence (SUI). It is considered to be most prevalent in the reproductive years[3]. This type of UI is characterized by the involuntary loss of urine during stress or exercise or when sneezing or coughing. It may occur as a result of anatomical changes such as hypermobility of the bladder neck and the deficiency of the sphincter mechanism[4].

The etiology of the SUI is not entirely clear, but the injuries that occur in the pelvic floor during pregnancy and childbirth are suggested as the main risk factors[5]. Although SUI is a common problem, the estimates of its prevalence obtained through epidemiological studies vary considerably and may be between 3.6% and 15% before pregnancy[5] and 28% to 64% during pregnancy[4].

SUI has a multifactorial etiology, and pregnancy is a significant factor in its development. During pregnancy the structures that support the pelvic organs need to adapt to the increased weight and the passage of the fetus during vaginal delivery. For this the perineal exercises and preparation of the pelvic floor muscles during pregnancy are critical to prevent neuromuscular damage and SUI[3].

So, believing that an opportunity for prevention may begin in nursing consultations during the prenatal period, pregnancy is the ideal time to educate women regarding their health. At this stage, a woman has constant contact with various health professionals and is, encouraged to improve her physical condition during the pregnancy[5]. This scenario raised, the following question: What interventions are developed for pregnant women during prenatal care in order to prevent UI?

When considering the nurse as an educator in potential to promote health, this study aimed to evaluate the available evidence in the literature on interventions to prevent UI in pregnant women during prenatal care.

METHOD

In order to achieve the proposed aim, integrative review was selected as a research method and progressed as follows: establishment of hypothesis and aims of the integrative review, development of criteria of inclusion and exclusion of articles (sample selection), definition of the information to be extracted from selected articles, analysis, discussion and presentation of the results; and, finally, the presentation of the review[6].

The articles were selected from the following databases: Latin American and Caribbean Health Sciences (LILACS), MEDLINE, Cumulative Index to Nursing and Allied Health Literature (CINHAL) and Cochrane.

The inclusion criteria, studies published in Portuguese, English or Spanish disclosed in the period 2005-2015 which reflected interventions used during prenatal care to prevent UI were included. They excluded articles were those that did not consider the guiding question of the research, abstracts and conference proceedings, comments, review articles, editorials, opinions and reports and research on other diseases or studies where methodological detail was incomplete.

Data was collected in October 2014,

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using the following control descriptors: Urinary Incontinence, Prenatal Care and Nursing, which were combined in each database according to the need, to ensure a wide search.

For the categorization of the data, an instrument was used that was adapted from Mendes et al[6], that considers the identification of the original article, methodological characteristics of the study and an assessment of the methodological rigor of measured interventions and findings.

A synoptic table was used and adapted[7] for the analysis and subsequent synthesis of the articles that met the inclusion criteria, with the name of the research and the authors, studied intervention, findings, recommendations and conclusions[8].

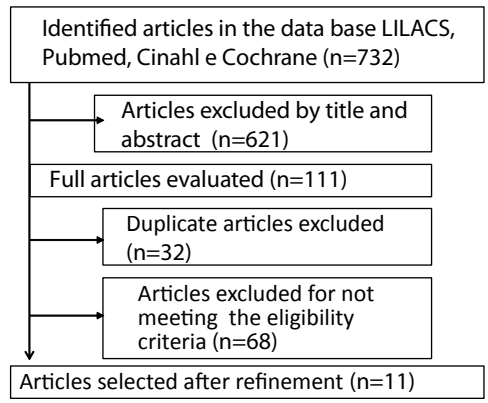
The information obtained was presented through tables, and discussion of the data was done descriptively, allowing the reader to evaluate the applicability of the elaborated integrative review.

RESULTS

After application of the inclusion and exclusion criteria, the final sample consisted of 11 articles. Seven of them were identified in PubMed database, and four in Cochrane. Only two articles were published in nursing journals, while nine were in medical journals. All articles published in international journals were in English. Figure 1 depicts the outline used for the selection of studies.

Regarding the level of evidence: seven studies showed evidence level II, i.e. randomized controlled trials (RCTs); a primary study presented evidence level III, with almost experimental outline; two studies presented with evidence level IV, prospective cohort; and a study with evidence level VI, with descriptive methodology. Table 1 lists the details of the studies included in the review.

Figure 1 - Flowchart articles selection process included in the integrative review. Fortaleza, 2014.



Source: own elaboration, 2014.

Table 1 - Details of studies included in the review. Fortaleza, 2014.

Studie	Design	Evidence Level	Sample	Year
Whitford et al(8)	Prospective cohort	IV	N= 289	2006
Stafne et al(9)	ECCR*	II	N= 855	2012
Bo e Haakstad(10)	ECCR*	II	N= 105	2011
Miquelutti et all(11)	ECCR*	II	N= 197	2013
Eliasson et al(12)	Prospective cohort	IV	N=665	2004
Sangsawang e Serisathien(13)	Almost-experimental	III	N= 66	2011
Morkved et al(14)	ECCR*	II	N= 301	2003
Butterfield et al(15)	Descriptive	VI	N= 225	2007
Reilly et al(16)	ECCR*	II	N= 268	2002

Low et al(17)	ECCR*	II	N= 249	2013
Agur et al(18)	ECCR*	II	N= 230	2008

**ECCR=Randomized Controlled Clinical Trial*
Source: own elaboration, 2014.

When evaluating the interventions used, most intervention groups compared training programs of the pelvic floor muscles during prenatal care with usual care. The length of time of the intervention was an average of 12 months. Training occurred in pregnant women between 20-36 weeks gestation and most interventions were categorized as cognitive and behavioral. The synthesis of the primary studies included in the review, the intervention performed and the main outcomes are shown in Table 2.

DISCUSSION

As shown in this review, there is an urgent need to carry out educational and preventive activities for UI during pregnancy. Prenatal nursing consultation is an excellent tool that identifies the risk factors for UI: high body mass index; inadequate bowel habits, constipation; urinary symptoms i.e. - episodes of involuntary loss of urine when coughing, sneezing, squatting, lifting weights (during the pregnancy or earlier); and the number of pregnancies and parity between them[2].

The nurse should investigate urinary symptoms, since many pregnant women or puerpera do not report their complaints because they believed that the loss of urine is normal and transient or is related to the gestation process. During vaginal touch, the nurse can also assess the strength of the pelvic floor muscles. This leads to improved knowledge and awareness of these muscles by women. This finding is one of the main data to be recorded in order to prevent SUI and from this information, nurses can guide pregnant women about the risk of weight gain, poor bowel function and its relationship to UI[9].

In 1948, Arnold Kegel emphasized the value of perineal strengthening exercises in the recovery of function of the pelvic floor muscles in women with SUI. These exercises are based on the precept that the repeated voluntary movements provide increased muscle strength[20]. However, it takes an awareness and education through information, showing the changes of the pelvic floor that can occur during pregnancy, for women to take preventive health behavior. Pregnant women need to be taught Kegel exercises and their effectiveness in strengthening these muscles.

In this sense, Kocaöz et al (2013), with health education at the forefront, states that health professionals should encourage women to adopt and maintain healthy living standards. Therefore, the nurse has a prominent role in the multidisciplinary team, acting as a catalyst element of the changes necessary for better quality of life of her customers. An exercise program for the pelvic floor muscles can teach women the function of these muscles as a control mechanism for urinary continence. Increased strength and muscle resistance helps support the bladder and urethral closure. This is of great importance for women who intend to become pregnant, as a decline in pelvic floor strength is expected from the 20th week of pregnancy to six weeks after delivery[21].

It is proposed, therefore, that women do perineal exercises during pregnancy, considering them a form of effective preventative treatment for SUI, and one that does not cause any side effects.

Researchers applied a training program to strengthen the pelvic floor muscles during the 20th to 35th weeks of pregnancy. The pelvic floor muscles had a higher strength at 6 weeks

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Table 2 - Summary of primary studies included in the review. Fortaleza, 2014.

Study	Population and sample	Intervention performed	Intervention classification	Denounment
	Women over 16 years old, at 30th week of gestation (N= 289)	Structured interview application with 81 questions about the practice of pelvic floor exercises;		- 225 (77.9%) knew the exercises;
-8			Cognitive	- 156 (54%) practiced the exercises during pregnancy;
				- 157 (54.3%) reported UI during pregnancy.
	Pregnants from the 20th week of pregnancy (N= 855)	- GI*: Participation in the training program of the pelvic floor muscles for 12 months;		
-9		- GC**: standard care;	Cognitie and behavioral	- 11 (19%) of GI reported no Stress Urinary Incontinence weekly and 5% reported Fecal Incontinence.
		GI:general exercises and contraction of the pelvic floor muscles for 12 months, 2 times/week, for 1 hour.		
(10)	Primiparous on 24th week of gestation (N=105)	GC: Usual care.	Cognitie and behavioral	There were no significant differences in the number of women reporting UI, flatus or fecal incontinence between GI and GC.
		GI: participation of the Preparation Program for Childbirth containing exercise and educational activity;		The risk of urinary incontinence in GI was significantly lower at 30 weeks of pregnancy (42.7%) and at 36 weeks of pregnancy (41.2%) compared to the GC (62.2% and 68.4%, respectively).
-11	low-risk nulliparous women with gestational age ≥ 18 weeks (N= 197)	GC: standard care;	Cognitie and behavioral	
	Nulliparous, with participation in the 36th gestational week and one year after delivery (N=665)	Application of a questionnaire with data on the presence of UI, physical activity before and during pregnancy, and mictional habits;	Cognitive	- Before pregnancy, 39% of women reported UI. Of these, 78% reported SUI, 13% reported UUI and MUI 9%;
-12				- Women over 26 years old reported more loss (42%) than women below 25 years old(29%).

	Pregnants with SUI¶ in the 20th--30th gestational week(N= 66)	GE: participation in the Program of exercise of perlvic floor muscle		- The women in the experimental group experienced frequency and volume of urine loss, and severity score of SUI realized after participation, significantly lower than the control group.
-13		GC: standard care;	Cognitie and behavioral	
	Pregnants from the 20th gestational week (N= 301)	GI: participation of the Training Program of Pelvic Floor Muscle, for 12 weeks;		- Significantly fewer women in the GI mentioned UI: 48 of 148 (32%) versus 74 of 153 (48%) of pregnants at 36 weeks gestation (p = 0.007) and 29 of 148 (20%) versus 49 of 153 (32%) with 3 months after delivery;
-14			Cognitie and behavioral	
		GC: Standard care		- Strength of the pelvic floor muscles was significantly higher in the intervention group at 36 weeks of gestation (p = 0.008) and 3 months after delivery (p = 0.048).
	Midwife providers of prenatal care, perinatal and postnatal (N=225).	Implementation of an instrument that contained questions about prenatal, perinatal and postnatal; as well as risk factors associated with UI.		- There were 131 (58.2%) midwives providing prenatal care, 168 (79%) taking care of women in intrapartum and 186 (86.9%) taking care in the postnatal period.
(15)			Cognitive	
				- Only 106 (64.6%) have evaluated guidelines, but only 89.6% of them (n = 69) used guideline to guide the practice.
	Primigravidae, at 20 weeks of gestation (N= 268)	- GI: guidance on practice exercises with repetitions of 8 contractions lasting 6 seconds, with two minutes of rest between repetitions, twice a day;		
(16)			Cognitie and behavioral	Only 19.2% of GI pregnants reported stress urinary incontinence postpartum, compared to 32.7% in the control group;
		- GC: Standard care		
-17	Pregnants from the 20th gestational week (N= 249)	Four groups:		

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		- (1) routine care with trained or directed expulsion;	Cognitie and behavioral	There was no statistical difference in the incidence of postpartum incontinence based on the expulsion method (p = 0.57) or in combination with prenatal perineal massage (valor P = 0,57).
		- (2)spontaneous self-directed expulsion;		
		- (3) Prenatal perineal massage started in the third quarter;		
		- (4)the combination of spontaneous expulsion plus perineal massage.		
-18	Women recruited in 1998-1999, in the 20th gestational week (N= 230)	- GI: Monthly Training Muscle of Pelvic Floor;		- The ignificant improvement of post-natal SUI, which was originally displayed in the TMAP group, compared with the control (19.2% vs 32.7%, P = 0.02) in 3 months, was not evident 8 years late (35, 4% vs. 38.8%, P = 0.7).
			Cognitie and behavioral	- 68.4% of GI said still perform TMAP as taught during the study.
		- GC: orientações verbais e um folheto sobre o TMAP		

GI*: Intervention Group
GC**: Control Group
SUI¶: Stress Urinary Incontinence
Source: Own elaboration, 2014.

puerperium, compared to a control group, and retained this up to 12 months postpartum[22]. Based on these results, the authors recommend exercises in the prenatal and postpartum periods and the measurement of the strength of the pelvic floor muscles in women who intend to become pregnant, encouraging the completion of a training program.

By contrast, Reilly et al (2012) did not find much benefit from pelvic floor exercises, because the number of women who reported UI postpartum was similar to the control group (19.2% vs. 32.7% respectively)[23].

Regarding the type of educational intervention to be performed, the type of intervention should take into account the specific characteristics of each population or service. An example is the evidence that older pregnant women benefit more from behavioral interventions with educational workshops[12], while the younger pregnant women benefit more from cognitive interventions using reminders[14].

With regard to the above and in order to inform and educate, interventions are needed both for the general population and health care professionals who promote reflection and bring clarifications about UI and, its impact on quality of life. Achieving this will lead to appropriate assistance for those seeking help.

In this study, the behavioral and cognitive strategies used educational technologies such as manuals, videos, flyers, reminders and health

education programs. These have been proven to be effective in providing information and leading to the seeking of treatment. There is great potential of reproducibility in other realities with a view to improving knowledge in these women with UI or with UI risk factors.

CONCLUSION

SUI is a condition of multifactorial etiology, and pregnancy is a significant risk factor in its development. Therefore, there is need for professionals working in the area of Women's Health, to play an active role in the prenatal consultation. This will incorporate an assessment of the strength of the pelvic floor muscles, questioning about the loss of urine before and during pregnancy and enhanced urinary complaints, and considering data such as high body mass index and constipation.

Additionally, pregnant women should be taught Kegel's perineal exercises which play a fundamental role in the prevention and correction of UI during pregnancy and puerperium, and are considered the only way to prevent SUI. The daily exercizes of 40 contractions, each held for 10 seconds, can be started in the 20th week, ending at 36th week of pregnancy.

Behavioral therapy and PFMT (pelvic floor muscle training) are effective strategies both in prevention and treatment of UI during prenatal care. When used in conjunction with cognitive and behavioral strategies, these approaches, are likely to produce the greatest potential results.

Behavioral, cognitive and social strategies all showed positive effects in the treatment and prevention of urinary incontinence during pregnancy. However, it is suggested that, where appropriate, a combination of interventions should be used to obtain more effective results.

It emphasizes the importance of empowerment of a preventive approach to UI, acting on modifiable risk factors for that the multidisciplinary approach is a pressing need to joint efforts in the search for positive results.

Although all of the studies are derived from international literature, all of the proposed interventions are easy to reproduce and adapt to the context of pregnant Brazilian women. The studies have been conducted with pregnant women of different cultures, races and ethnicities, as well as users of different health systems.

Hopefully, with this study, health professionals working with IU will be encouraged to conduct intervention research, especially in the primary care level, using theories that support its use, as well as methodological designs with higher levels of evidence, thereby contributing to practice on a consolidated and based health evidence.

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