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RESEARCH ARTICLE

Effect of Warm Showering on Labor Pain during the First Stage of Labor

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Abstract

Introduction: Pain and anxiety control is important during the first (1st) stage of labor. Warm water showering was suggested to alleviate pain and anxiety during labor.

Aim of the study: The present study aims to evaluate the influence of warm water showers on labor pain during the 1st stage of labor.

Subjects and Methods:

The present study is an interventional randomized controlled study. This study was conducted at Almatrentaih Private Hospital at Alexandria, Egypt. One hundred women in the 1st stage of labor who met the inclusion criteria were included in the study. They were equally divided into two groups. Random allocation computer software assigned participants to either the experimental or control group. A pre designed questionnaire consisted of two parts was developed, validated and used for measurement of the necessary data. Part one: labor data, such as age, gestational age, parity, and body mass index (BMI). Part two Visual Analogue Scale (VAS) ranged from zero (being none at all) to ten (being the most possible) used for measurement of the degree of pain of the first stage of labor, anxiety, and fatigue. After invitation and agreement of the subjects to participate in this study, the pre designed questionnaire was completed. Then, the experimental group participants entered the shower for 30 minutes, and the control group had the usual pain relief measures at the department. Again, the entire subjects were asked to indicate their degree of labor pain, anxiety, and fatigue using the Visual Analogue Scale (VAS).

Results: No statistically significant differences were found between the studied groups regarding the basic data. No statistically significant differences were found between groups prior to intervention. The study group had significantly lower pain and anxiety levels ($P = 0.011$, and $P = 0.018$) respectively, when compared with the control group. However, no statistically significant differences were found between both groups regarding fatigue. In regression analysis, exposure to warm showers was a significant predictor ($P = 0.005$) of pain reduction in the studied women.

Conclusions: Exposure to warm showers alleviates pain and anxiety in the 1st stage of labor.

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Introduction

Many studies point to labor pains as the most significant source of discomfort during childbirth, generating levels of pain that frequently exceed physical endurance limits.⁽¹⁾ Labor pains and loss of control, the two most frequently cited unpleasant experiences of childbirth, directly affect woman's satisfaction concerning birth care, which in turn adversely affects self-perceptions and self-esteem.⁽²⁾ With labor pain outside the mother's control, she also faces increased risk of feeling fear, tension, anxiety, helplessness, and loss of control of the overall birthing process.⁽³⁾

Nurses are primary caregivers during the birth process, have the potential to reduce some use of medical interventions by providing effective comfort measures that support and promote physiologic labor.⁽⁴⁾ Although effective at relieving pain, parenteral pain medication and epidural interventions cause known side effects in the mother and fetus, consequently lengthening the labor duration.⁽⁵⁾ Warm shower during childbirth has been reported to influence labor pain.⁽⁶⁾ A literature review of pain relief strategies used by nurse midwives in Brazil, surveying three databases (BDENF, CINAHL and MEDLINE) between 2002 and 2012 located 21 scientific articles that addressed the non-invasive technologies nurse midwives used for relief of labor pain. These strategies included stimulation of breathing and relaxation; massaging with essential oils; encouraging freedom to move and walk, the free choice for vertical positioning; using of showers and baths, and using of birth ball.⁽⁷⁾ Entering a warm shower has therapeutic effects and could be used for providing comfort and relief of pain during labor. Water transmits a desired therapeutic temperature into target tissues, changing the state of irritant receptors and reducing perceived pain.⁽⁸⁾ Some studies reported that women who had given birth and had used hot showering during labor indicated that showering was effective for pain management.⁽⁵⁾ In these studies, 32% and 33% of women who used showering for pain management described showering as “very helpful,” and 52% and 45% described it as “somewhat helpful”.⁽⁹⁾ In addition to patients finding showering to be beneficial during labor, nurses also report that showering is safe, effective, and usually accessible during labor.⁽¹⁰⁾ Lee et al (2013) revealed that a warm shower constitutes a positive physical hygiene that is a cost-effective, convenient, and an easy-to-deploy, non-pharmacological approach to pain reduction. This intervention helps women in labor to participate fully in the birthing process, earn continuous caregiver support, feel cared for and comforted, and have a more positive overall experience.⁽⁶⁾

Nurse midwives are always concerned with non-pharmacological measures for relief of pain and prevention of maternal suffering during childbirth.⁽¹¹⁾ Although a warm shower is one of the non-pharmacologic comfort measures for pain relief during childbirth that improves mothers' satisfaction with their childbearing experiences, it is not tested empirically and the medical literature did not provide attention to it and sometimes provide inconsistent results regarding this technique.^(12,13) Thus, it was important for the present study to find out the influence of warm water showering on labor pain during the 1st stage of labor.

Aim of the study

The present study aims to evaluate the influence of warm water showering on labor pain during the 1st stage of labor.

Research question

What is the influence of warm water showering on labor pain during the 1st stage of labor?

Subjects and method

Design

The present study is an interventional randomized controlled study.

Setting

This study was conducted at Almatrentaih Private Hospital at Alexandria, Egypt. Participants were recruited from the prenatal clinic and birthing unit.

Subjects

The study included one hundred women in the 1st stage of labor. They were equally divided into two groups. Random allocation computer software assigned participants to either the experimental or control group. The inclusion criteria were women from 18 to 50 years of age, between 37 and 41 weeks of gestation, in active labor (contracting at least every 5 minutes), had an uncomplicated, singleton pregnancy, mobility to enter and exit the shower, and could speak, read, and write.

Tool for data collection

A questionnaire sheet to collect the necessary data was developed and validated. It consisted of two parts. Part one: labor data, such as age, gestational age, parity, and body mass index (BMI). Part two: Visual Analogue Scale (VAS) ranged from zero (being none at all) to ten (being the most possible) used for measurement of the degree of pain of the first stage of labor, anxiety, and fatigue.

Procedure

A preparation phase included literature review and development of the study questionnaire. Content validity of the questionnaire was established by a five jury experts in the field of obstetric and gynecologic nursing. No modifications were made, because there were no serious changes.

Ethical and legal considerations included an informed oral consent for participation in the study that was obtained from the entire sample. Subjects were assured that the nature of the study was not causing any harm or pain, of the confidentiality and anonymity of information, right to withdraw from the study at any time if desired and that all data were used only for the research purposes. Additionally, official letter clarifying the purpose of the study was obtained from the faculty of nursing and submitted to the responsible authority of the selected setting.

After invitation and agreement of the subjects to participate in this study, the pre-designed questionnaire was completed from the entire subjects. Then, the experimental group participants entered the shower for 30 minutes.

This length of time was selected because women in hydrotherapy had significant changes after 15 minutes.⁽¹⁰⁾ Since showering is similar to hydrotherapy but yet untested, 30 min of showering was chosen to allow for adequate treatment effect. For safety, they were encouraged to sit on a stool placed in the shower and all wore rubber nonsolid shower slippers. While encouraged to sit while showering, they were instructed that they could change positions for comfort and adjust both the temperature and direction of the flow of water. The development of this intervention has

been reported elsewhere.^(14,15) The control group had the regular measures for pain relief provided at the department. Again, the experimental group and the control group participants were asked to indicate their degree of labor pain using the Visual Analogue Scale (VAS).

Data were collected from the predetermined sample size over a period of four months, 2 days per week at Almatrentaih Private Hospital, Alexandria, Egypt.

Statistical analysis

Data obtained from the present study were computed using SPSS versions 17 under the platform of Microsoft Windows XP, Professional Edition. Continuous data were expressed in the form of mean $\pm$ SD while categorical data were expressed in the form of count and percent. Comparison of continuous data was performed utilizing student t test. Regression analysis was performed to detect variables relation to a certain outcome. P value less than 0.05 was considered statistically significant.

Results

Table (1) shows comparison between the studied groups regarding the basic characteristics. No statistically significant differences were found between the studied groups regarding their age, gestational age, body mass index, and parity.

Table (2) shows comparison between the studied groups regarding the pretest outcome variables (pain, anxiety, and fatigue) prior to intervention. No statistically significant differences were found between groups prior to intervention.

Table (3) shows comparison between the studied groups regarding the posttest outcome variables (pain, anxiety, and fatigue). The study group had significantly lower pain and anxiety levels ($P = 0.011$, and 0.018) respectively at a confidence interval of 0.05%, when compared with the control group. However, no statistically significant differences were found between both groups regarding fatigue.

Table (4) shows the predictor variables for pain relief / reduction in the studied groups using the regression analysis. The results shows that exposure to warm showers was a significant predictor of pain reduction in the studied women during the first stage of labor ($P = 0.005$) at a confidence interval of 0.05%, when compared with the control group.

Table-1 Comparison between the studied groups regarding the basic data

basic data	Study group (n=50)	Control group (n=50)	Student t test	
			T	p
Age	28.4 $\pm$ 5.7	26.6 $\pm$ 6.2	0.56	0.31
Gestational age	38.7 $\pm$ 1.9	38.0 $\pm$ 1.5	0.22	0.85
BMI	29.2 $\pm$ 3.8	30.1 $\pm$ 2.6	0.62	0.44
Parity	2.4 $\pm$ 1.1	2.3 $\pm$ 0.9	0.35	0.77

Table-2 Comparison between the studied groups regarding the pretest outcome measures

posttest outcome measures	Study group (n=50)	Control group (n=50)	Student t test	
			t	p
Pain	7.4 ± 3.2	7.2 ± 3.5	0.22	0.71
Anxiety	6.7 ± 1.8	6.2 ± 2.2	0.44	0.39
Fatigue	5.6 ± 1.1	5.9 ± 1.7	0.55	0.34

Table-3 Comparison between the studied groups regarding the posttest outcome measures

posttest outcome measures	Study group (n=50)	Control group (n=50)	Student t test	
			t	p
Pain	4.8 ± 2.1	6.9 ± 3.0	-2.2	0.011*
Anxiety	4.5 ± 1.7	6.3 ± 1.5	- 2.1	0.018*
Fatigue	6.3 ± 1.1	6.1 ± 1.4	0.32	0.51

Table-4 Predictors for pain relief in the studied groups

Predictors for pain relief	OR	CI	P
Age	0.56	0.43 – 1.87	0.44
Gestational age	0.85	0.21 – 1.8	0.6
BMI	0.17	0.12 – 1.04	0.78
Parity	0.91	0.83 – 3.1	0.31
Warm shower exposure	0.56	1.2 – 3.7	0.005*

Discussion

While therapeutic showering is a frequent and familiar activity and thought to be beneficial for comfort during labor, its efficacy was rarely evaluated in clinical studies. The present study found a positive effect of therapeutic showering on the studied women pain and anxiety levels. The effect was significantly marked, when compared with the control group. Data of the present study clearly demonstrate the effectiveness of warm showering in reducing labor pain. ⁽⁸⁾

A study conducted by Lee et al (2013) in the maternity ward of a Taipei City regional teaching hospital, site of approximately 220 to 250 births per month. Ninety-two expectant mothers were recruited (recruitment rate: 70.8%) and allocated by block randomization into the two arms of the study. In total, 80 women completed the trial: 41 in the control group and 39 in the experimental group. The study revealed that warm showers are a cost-effective, convenient, easy-to-deploy, non-pharmacological approach to pain reduction. This study is in agreement with the present study. ⁽⁶⁾

Gate control theory of pain described how nerves dispatch pain signals through the spinal cord to the brain. Pain stimuli cross the open spinal gate to receptors in the brain, where the appropriate pain response is directed. Interference with this transmission vector can yield effective pain relief. Signals generated by warm-water stimulation of epidermis thermoreceptor reach the brain faster than those sent by pain receptors, effectively blocking transmission of the latter and reducing perceived pain. ⁽¹⁶⁾

Heat-enhanced blood circulation also relieves stress-induced muscle cramps. Focusing warmth on specific tissues further improves tissue metabolism and elasticity, raising the effective pain threshold. ⁽⁸⁾ The practical requirements of warm shower bath interventions further increases patient movements, activity and encouraging the regular positional changes that help relieve pain. ⁽¹⁷⁾

Many studies highlight the significant role of parturition pain on the mother's perception of the childbirth experience. The negative correlation between pain and self-control implies that a mother's sense of self control over the childbirth process increases with better pain control. Effective labor pain control is thus critical to make childbirth a more positive, rewarding experience. The two most important factors influencing client satisfaction with the childbirth experience are the level of participation in the decision making and the degree of self-control over the process. ^(18,19). Researchers have demonstrated that efficacy of water therapy on enhancing parturient mothers' sense of self-control. ⁽⁸⁾

Many studies revealed that nurse midwives can implement simple effective low-cost non-pharmacological labor pain relief measures that promote labor progress, increase women satisfaction, and avoid side effects of medications. Warm water showering is one of such measures that diminishes pain stimulus at the source, inhibits pain awareness, and reduces women's negative reaction to childbirth pain.^(4,12,20) These studies are enforced by the findings of the present studies.

Conclusion and recommendations

Warm shower is an effective pain reliever during the first stage of labor. Continuing education for nurse midwives should emphasize water therapy as a non-pharmacological measure to pain relief during first stage of labor in clinical practice. This study enhanced the non-pharmacological knowledge, based on scientific evidence and good outcomes in pain relief during labor with humanized care at clinical settings.

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