Effect of Non-Pharmacological Pain Management Methods on Reduction the Duration of Labor Stages in Primigravida Women at AL-Elwyia Maternity Teaching Hospital

تأثير طرائق تدبر الالم الغير دوائية على تقليل مدة مراحل المخاض لدى النساء البكريات بمستشفى العلوية التعليمي للولادة

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المستخلص :

الأهداف: هدفت الدراسة الحالية الى تقويم تاثير طرق تدبر الالم الغير دوائية على تقليل مدة مراحل المخاض لدى النساء البكريات بمستشفى العلوية التعليمي للولادة.

المنهجية: تم استخدام تصميم دراسة شبه تجريبية في الفترة ما بين الرابع من تموز ٢٠١٨، والرابع والعشرون من تشرين الاول ٢٠١٨. باستخدام عينه غرضية ل(٦٠) امرأة بكرية ل(٣٠) منهم مجموعة ضابطة و (٣٠) مجموعة دراسة اللاتي ادخلن مستشفى العلوية التعليمي للولادة ويعانون من آلام المخاض. تم استخدام الاستبيان كأداة لجمع البيانات. واستخدمت التحليلات الإحصائية الوصفية والاستنتاجية لتحليل البيانات.

النتائج: كشفت نتائج الدراسة الحالية ان أعلى النسب المئوية لمجموعات الدراسة و المجموعة الضابطة في الفئة العمرية (أقل من ٢٠ عامًا) ، وتعليمهن هو الشهادة الابتدائية ، ربات بيوت ، ويعشن في المناطق الحضرية ، وهن ضمن فئة الدخل المعيشي المنخفض ، في عمر الحمل بين (٣٩ - ٤٠ أسبوعًا + ٦يوم ، ولديهن حالة الغشاء سليمة . وفيما يتعلق بمدة المخاض فهناك اختلافات كبيرة في المراحل (الأولى والثانية والثالثة) من المخاض بين مجموعتي الدراسة والمجموعة الضابطة وذات دلالة احصائية عند (0.001 = P) ، (P = 0.002)، (P = 0.000 at) على التوالي.

التوصيات: أوصت الدراسة بإجراء برنامج تدريبي منظم لجميع القابلات في مستشفيات الولادة ومراكز الرعاية الصحية الأولية لتمكينهم من تنفيذ طرق تدبر الألم الغير دوائية ، بالإضافة إلى توزيع دليل بسيط للقابلة يحتوي على معلومات حول الاستخدام السليم لأساليب تدبر الألم الغير دوائية ومزاياها

الكلمات المفتاحية: الطرق غير الدوائية ، المخاض، النساء البكريات.

Abstract:

Objectives: To evaluate the effect of non-pharmacological pain relief methods on duration of labor stage.

Methodology: A quasi-experimental study design was conducted during the period of (4th July 2018 through 24th October 2018) on non-probability of (60) women (30) of them were a control group and (30) were the study group whom admitted to Al-Elwyia Maternity Teaching Hospital suffering from labor pain. A questionnaire was used as a tool of data collection Descriptive& Inferential statistical analyses were used to analyze the data.

Result: The highest percentages of study and control groups were in age group (< 20) years old, primary schools graduates, housewife, from "urban area", within low category of socioeconomic scale, at gestational age between (39 weeks – 40 weeks $^{+6day}$), and have intact membrane status .Also there are highly significant differences concerning durations of the (1st, 2nd, and 3rd) stages of labor among study and controlled groups at (P=0.001),(P=0.002),&(at (P=0.000) respectively.

Recommendation: The study recommended to conduct structured training programmed for all midwives in maternity hospitals and primary health care centers to enable them to implement the non-pharmacological pain relief methods, in addition a simplified guideline for midwife should be disrupted and contains information about the proper use of non-pharmacological pain management methods and its advantages

Keywords: Non-Pharmacological, Pain, Management, Labor, Primigravida

Introduction

One of the most substantial and beautiful periods of a woman's life is pregnancy. It ends with labor process which is the delivery of a fetus. Labor is a dynamic process and a natural unique experience occurred in most women's life. It is associated with meaningful life event, presents both psychological and physiological deviances serious for most pregnant women [1]. Therefore, the first priority in confirm a positive labor outcome and

Methodology

A quasi-experimental study design was conducted on non-probability (purposive sample),of (60) women (30) of them were a control group and (30) were the study group whom admitted to Al-Elwyia Maternity Teaching Hospital suffering from labor pain. Study implemented from the period of (4th July 2018 through 24th October 2018). Data collection was gathered by application one of non-pharmacological strategies of pain relief methods include (massage, aromatherapy by use (frankincense, jasmine,& olive oils), body movement and change position (squatting, side-lying,& standing),breathing technique, and therapeutic touch) ,and by used questionnaire format to fulfill with

satisfying the physiological need of women is by effective labor pain management [2]. Especially used non-pharmacological pain relief methods, because these methods having no adverse effects on the mother and child, improve women coping with pain, haven't interference with the progress of labor, also being comfort for the mother and fetus and increase women feeling of control toward childbirth experiences [3]

objective of the study and consisted of three parts, including demographic, reproductive characteristics, and non-pharmacological methods the delivering woman received during labor. The reliability of the questionnaire calculates by use Alpha Cronbach (α) for the reliability of questionnaire (Internal consistency)

Where; $\alpha = \frac{K}{K-1}\left[1 - \frac{\sum_{i=1}^{K}\sigma_{ii}}{\sum_{i=1}^{K}\sum_{j=1}^{K}\sigma_{ij}}\right]$

And content validity was carried out through the 12 experts. A pilot study was carried out between the 25th June 2018, to 1st July 2018, on (10) women who suffering from labor pain in Al-Elwyia Maternity Teaching Hospital. Descriptive and inferential statistical analyses were used to analyze the data.

Results

Table (1): Distribution of the Socio-demographic Characteristics for the Studied Sample with Comparisons Significant

Variables	Groups	Study(n=30)		Control(n=30)		C.S. [*] P-value
		No.	%	No.	%	
Age Groups (Per Years)	< 20	14	46.7	16	53.3	C.C.=0.224 P=0.365 (NS)
	20 _ 24	10	33.3	11	36.7	
	25 _ 29	3	10	3	10	
	30 _ 34	3	10	0	0	
	Total	30	100	30	100	
Educational level for women	Illiterate	2	6.7	0	0	C.C.=0.291 P=0.476 (NS)
	Read &write	2	6.7	3	10	
	Primary school	9	30	11	36.7	
	Intermittent school	6	20	10	33.3	
	Preparatory school	4	13.3	3	10	
	Baccalaureate	6	20	3	10	
	Higher studies	1	3.3	0	0	
	Total	30	100	30	100	
Occupation status of women	Housewife	28	93.4	28	93.3	C.C.=0.147 P=0.513 (NS)
	Employee	1	3.3	0	0	
	Others	1	3.3	2	6.7	
	Total	30	100	30	100	
Residential environment	Urban	27	90	26	86.7	C.C.=0.052 P=0.688
	Suburban	3	10	4	13.3	

	Total	30	100	30	100	(NS)
Monthly income	Less than 200000	14	**46.7**	17	**56.6**	C.C.=0.270 P=0.457 (NS)
	201000 - 400000	7	23.4	6	20	
	401000 - 600000	1	3.3	3	10	
	601000 - 800000	6	20	2	6.7	
	801000 - 1000000	1	3.3	2	6.7	
	1010000 and more	1	3.3	0	0	
	Total	30	100	30	100	

[*] **NS: Non Sig. at P>0.05; Testing based on a contingency coefficient (C.C.) test. ; C.S= Chi-Square; No= Number; %=Percentage**

Table (1) shows that the highest percentage (46.7%), (53.3%) respectively for both study and control groups were in age group (< 20) years old, (30%) (36.7%) respectively for both groups were at primary school. (93.3%) in both study and control groups were housewife, (90%) (86.7%) respectively were from urban area (46.7%) (56.7%) respectively within low category of socioeconomic scale.

Table (2): Distribution of the Reproductive Characteristics for the studied sample

Variables	Classes	Study(n=30)		Control(n=30)		C.S. [*] P-value
		No.	%	No.	%	
Gestational Age (per weeks)	37- 38+6day	12	40	11	36.7	C.C.=0.035 P=0.964 (NS)
	39- 40+6day	16	**53.3**	17	**56.7**	
	41 & more	2	6.7	2	6.7	
	Total	30	100	30	100	
Membrane Status	Ruptured	14	46.7	10	33.3	C.C.=0.135 P=0.292 (NS)
	Intact	16	**53.3**	20	**66.7**	
	Total	30	100	30	100	

[*] **NS: Non Sig. at P>0.05; Testing based on a contingency coefficient (C.C.) test. C.S= Chi-Square; No= Number; %=Percentage**

Table (2) shows that the highest percentage (53.5%) (56.7%) respectively for both study and control groups were at gestational age between (39 – 40 weeks [+6day]), and (53.3%) (66.7%) respectively for both study and control groups have intact membrane status.

Table (3): Type of Practices Concerning Pain Management Methods Uses for Study group

No.	Items	No.	Yes		No		Order
			F	%	F	%	
1	Frankincense Oil	30	9	30.0%	21	70.0%	1.0
2	Jasmine Oil	30	7	23.3%	23	76.7%	2.0
3	Side-Lying Position &Breathing	30	4	13.3%	26	86.7%	3.0
4	Squatting Position	30	4	13.3%	26	86.7%	3.0
5	Massage	30	1	3.3%	29	96.7%	4.0
6	Massage &Standing position	30	1	3.3%	29	96.7%	4.0
7	Therapeutic Touch &standing	30	1	3.3%	29	96.7%	4.0
8	Olive Oil	30	1	3.3%	29	96.7%	4.0
9	Breathing Technique	30	1	3.3%	29	96.7%	4.0
10	Therapeutic Touch & side-lying position	30	1	3.3%	29	96.7%	4.0

As table (3) reveals, results show type of practices uses (methods), contents 10 methods, which proved that " Frankincense Oil" has recorded the high and first ordered method, and accounted 9 (30%), then followed with Jasmine Oil", and accounted 7 (23.3%), then followed with "Squatting Position, Side-Lying Position &Breathing", and accounted 4 (13.3%), Massage, Massage& Standing position, Therapeutic touch & Standing, Olive Oil, Breathing Technique, Therapeutic Touch & side-lying position" are accounted 1 (3.3%).

Table (4): Distribution of the Studied Groups according to Duration of Different Stages of Labor after the Implementation of Non-Pharmacological Pain Management Methods in Study Group

Duration of labor Stages	category	Study (n=30)		Control (n=30)		C.S. [*] P-value
		No.	%	No.	%	
1st stage (per hours)	5 _ 7	12	40	2	6.7	C.C.=0.474 P=0.001 (HS)
	8 _ 10	13	**43.3**	9	30	
	11 _ 13	5	16.7	13	**43.3**	
	14 >	0	0	6	20	
	Total	30	100	30	100	
2nd stage (per minute)	< 30	6	20	0	0	C.C.=0.485 P=0.002
	30 _ 39	8	**26.7**	7	23.3	

	40 _ 49	6	20	6	20	**(HS)**
	50 _ 59	6	20	0	0	
	60 _ 69	3	10	11	**36.7**	
	70 >	1	3.3	6	20	
	Total	30	100	30	100	
3rd stage (per minute)	< 10	22	**73.4**	0	0	**C.C.=0.620 P=0.000 (HS)**
	10 _ 19	7	23.3	24	**80**	
	20 _ 30	1	3.3	6	20	
	Total	30	100	30	100	

[*] **HS: Highly Sig. at P<0.01; Testing based on a contingency coefficient (C.C.) test. C.S= Chi-Square; No= Number; %=Percentage**

Table (4) the results show that distribution of studied groups has recorded highly significant differences in first stage at second category (8-10 hours), since they are accounted 13(43.3%) in study group, while in control group has recorded their duration at the third category (11-13 hours), since they are accounted 13(43.3%). **Relative to Second stage** shows that study group has reported their durations at the second category (30-39 minute), since they are accounted 8(26.7%), while the control group has recorded their durations at the fifth categories (60-69 minute), since they are accounted 11(36.7%).**Finally, Relative to third stage** shows that study group has reported durations at the first category (<10 minute), since they are accounted 22(73.4%), while controlled group has recorded durations at the second category (10-19 minute), since they are accounted 24(80.0%).

Discussion:
Regarding to Socio Demographic Characteristic: (Table 1)
The result of present study has reported that the highest percentages (46.7%), (53.3%) respectively for both study and control groups are (< 20) years old. This finding is consistent with study that indicated that labor pain was found to be more severe in younger age (adolescent parturient) as compared to those above 20[4]. Labor pain is related to many factors, especially, age which can influence women to experience labor pain [5]. The highest percentages (30%) (36.7%) respectively for both study and control groups are primary schools graduates. This finding is consistent with study show that women with low educational level will have minimum level of performance to cope with pain during childbirth process. While it was pointing that woman with higher level of educational "such as college" was more perception to the childbirth preparation methods, presenting classes, and books reads to cope with pain of labor[6]. The height percentages in occupational status of wife, are "Housewives", and they are accounted (93.3%) in both study and control groups, this finding is constant with the study that found majority of women (60% in experimental group, 64% in control group were not working. They explain that the occupation factor is one factor can influence women to experience labor pain due to when a women be unemployed (housewife) as in their study it consider as a positive things that woman need it and this could be explained by the amount of stress that a pregnant woman will face during her employment[7]. The vast majority (90%) (86.7%) respectively of the both study and control groups were living at urban areas in agreement with a cross-sectional survey on Iraqi women that use of complementary and alternative medicine in pregnancy found that (53.7 %) of Iraqi women were living in urban areas. The researcher noted that although these women living in urban area and were have sufficient awareness that labor is painful, but there is lack of knowledge regarding the methods of non-pharmacological

pain relief, and there advantages and disadvantages [3].

Monthly income:-

The results show that the vast majority of the study sample is within low category (less than 200000) Iraqi Dinar and account for (46.7%) (56.7%) respectively for both study and control groups. These results are constant with study that indicated to the women with high level of socioeconomic which accounted through applying of the Ministry of Planning and Development Cooperation /Central Statistical Organization Technique and Information scale. These women were be more convinced with the labor process than those with low income [6].

Reproductive Parameters:-

Table (2) shows that the highest percentage (53.5%) (56.7%) respectively for both study and control groups were at gestational age between (39 weeks – 40 weeks $^{+6day}$), these result are agreement with study that found that physiological factors such as uterine contractions, cervical dilation, and gestational age though essential parts of labor, are major contributors to labor pain[4]. the highest percentages (53.3%) (66.7%) respectively for both study and control groups have intact membrane status. These group of women are exposed to made artificial rupture of membrane to progress of labor and speed cervical dilation so the heath care provider made the artificial rupture membrane to speed labor duration and enhance progress of labor and this mean the women exposed to more painful that those with pre labor rupture of membrane at term and need to arrangements for educated about how copy with pain.

Non pharmacological methods

The results of table (3) show percent concerning type of methods uses, which contents 10 methods the first ordered which proved that "

frankincense oil" method has recorded the high and accounted 9 (30%), then followed with jasmine oil" method, and accounted 7 (23.3%), then followed with "squatting position, and side-lying position &breathing" methods, and accounted 4 (13.3%), finally, massage, massage& standing position, therapeutic touch & standing, olive oil, breathing technique, and therapeutic touch & distraction" are accounted 1 (3.3%). In this study is noted that essential oils (Frankincense, jasmine, and olive) recorded the high number of uses and accounted 17(56.7%) the researcher attempted to use aromatherapy for participant (according to their preference) due to that the researcher noted the uses of these aromatherapy are widely in world and have many benefit especially when use during labor, while in Iraq it's never used in hospitals or in health care centers by teaching woman how to use. only there is a cross-sectional survey was designed to collect information on the use of complementary and alternative medicine (CAM) among Iraqi pregnant women in outpatient department of four hospitals located in Basrah, and the findings of survey showed that more than 50% of the pregnant women used herbal medication as a CAM modality, and that herbal products are (raspberry leaf, ginger, chamomile, and cranberry juice), as to gain strength or to get prepared for the labor, and most common source of CAM information was friends and family[3]. So that note that these Iraqi women use the herbal aromatherapy instead of use essential oils that have more effectiveness by promoting general relaxation, reduce anxiety and helpful to reduce labor pain as it used in current study depend on wide evidence based. Then as observed in this study some women preference changing positions and accounted 4(13.3%) include squatting,

side-lying position and standing which used as combine with other method. These positions help to speed labor by adding the benefits of gravity and changing the shape of the pelvis in addition the position that women assumes have a profound effect on uterine activity and efficiency [8]. Related to use breathing technique in this study one woman chose to apply breathing technique as when sit in bed and 4 of them use breathing technique with slid lying position and they are accounted 4(13.3) the researcher teaches woman how to apply this method by based on evidence based studies [9&10].Relative to use massage technique the results show that there are two women were choose massage (one massage combined with standing position and other with side-lying position). The massage is one of the best non pharmacological therapies useful in labor. Because it has the potential benefits such as decreasing the intensity of pain & duration of labor, relieving the muscle anxiety. So that the researcher depend on studies to application the massage [11-13]. Relative to use therapeutic touch observed that there are two women chose therapeutic touch but in different way one with standing position and another with side-lying position.

Duration of different Stages of labor after the implementation of pain management methods in study group
Table (4) the results show that distribution of studied groups has recorded highly significant differences in first stage at the first two categories mostly, since they are accounted 25(83.3%) in study group, while control group has recorded their duration at the second, third, and fourth categories mostly, since they are accounted 28(93.3%). Relative to Second stage shows that study group has reported their durations at the second category mostly, since they are

accounted 8(26.7%), while control group has recorded their durations at the fifth categories mostly, since they are accounted 11(36.7%).Finally, Relative to third stage shows that study group has reported durations at the first category mostly, since they are accounted 22(73.4%), while controlled group has recorded durations at the second category typically, since they are accounted 24(80.0%). The world health organization (WHO), 2018 recommended that duration of first stage of labor usually doesn't expand beyond (12) hours in first labor, and usually doesn't expand beyond (10) hours in subsequent labors. While, second stage varies from one woman to another. In first labor birth is usually completed within (3) hours whereas in subsequent labors birth is usually completed within 2 hours [14]. These recommendations depended on evidence obtain from systematic review of (37) studies evaluating the duration of labor for women without risk factors. These studies were published between year 1960 and 2016 in the 17 low- middle & high income countries "China, Colombia, Croatia, Egypt, Finland, Germany, Japan, Korea, Myanmar, Nigeria, Norway, Taiwan, Uganda, The United Kingdom, The USA, and Zambia" and involving over "200,000" women of different socioeconomic status [15]. The findings of current study shows that these reduction in duration of labor stage concerning study group related to implementation of several methods of non-pharmacological pain management especially use frankincense, jasmine and olive oils) then followed with position, therapeutic touch, breathing technique, and massage. These findings are in agreement with studies which uses non-pharmacological pain relieve methods that include: Study in turkey found that breathing exercises with deep inhalation and exhalation in

pregnant women are effective in shorting the duration of the second stage of delivery it was (369.6+-92.0)S for intervention group and (446.7+_ 142.5)S for control group (p < 0,001) [10]. In addition, study conducted in Iran which showed that the length of the labor second phase of first stage in intervention group was 55/16±70/5 and in control group was 85/23±90/18, which revealed a meaningful difference (p=0.001) which conclude that using breathing techniques to reduce the pain in the labor first phase is very effective [11]. Also, Cochrane systematic review of (25 trials) conducted in cross of high, middle, and low resource countries, including (1 trial) each in Australia, Tunisia ,Brazil, Hong Kong ,Finland, Iran, Japan, India, Sweden, China, and Thailand, (2) in France, (5 trials) in the USA, (7 trials) in the United Kingdom, and these trials included both randomized and quasi-randomized controlled trials in both the first and second stages of labor suggest examined comparisons between   upright   and   ambulant positions ranged from (kneeling, sitting, walking, and squatting) versus bed care were found reduction in duration of first stage in the upright and ambulant group compared to supine and recumbent position at about at (1) hour and 36 minutes [16]. Furthermore, another study showed that there is a reduction in duration of first and second stage of labor for the intervention group who receiving massage compared to the test group(p= 0.004 and p= 0.02, respectively [17].

Recommendations

The study recommended to conduct Structured training programmed for all midwifes in maternity hospitals and primary health care centers to enable them   to   implement   the   non-pharmacological pain relief methods, in addition A simplified guideline for midwife should be disrupted and made available in English and Arabic which contains information about the proper use   of   non-pharmacological   pain management methods and its advantage

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