Effect of Educational Program on Improving Nursing Knowledge and Practice Regarding Administration of Oxytocin during Labor

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Abstract:

Background Oxytocin is a serious medication that needs close monitoring to avoid consequences on the mother and the fetus and to evaluate labor progress. Aimof the study wasto evaluate the effects of educational program on improving nursing knowledge and practice regarding administration of oxytocin during labor. Subjects& methods: Research design: A quasi-experimental design was used.Setting: the study was conducted in maternity hospital at Zagazig university hospitals,SharkiaGovernorate, Egypt, between the periodfrom October 2018 to March 2019. Subjects: included two groups: Group I:Parturient women(30 women in pre-intervention and another 30post intervention) and Group II: Consists of thirty nurses provided direct nursing care for women during labor. Tools of data collection: Four tools were used in this study.The first tool wasparturient women assessment sheet during labor, the second tool was knowledge questionnaire sheet, the third tool was an observational checklist for nurses' practice, while the fourth tools was intervention program.Results: The results of this study show that there was improvement in nurse's knowledge and practice about giving oxytocin during labor after implementation of the program. Also, there was a positive relation between nurse's knowledge and practice level with maternal and fetal outcome Conclusion: there was high positive correlation between nurse's knowledge and practice level after the intervention program.Recommendations: Provide in-service training program or workshops to provide the nurse midwives with knowledge and practice about oxytocin drug administration during labor.

Key words:Intervention-program – Nurses-knowledge – Practice –Oxytocin

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I. Introduction

Childbirth is a most pleasurable event to the mother at the same time it is also a life-threatening event to her. Hence, ensuring safe childbirth is the responsibility of a maternity nurse by promoting and preserving the health of the mother and fetus from conception to childbirth [(1)].

Labor augmentation is the process of stimulating the uterus to increase the frequency, duration and intensity of contractions after spontaneous labor has begun. It has been frequently used to treat delayed labor when had uterine contraction are evaluated as the underlying cause. The traditional methods of labor augmentation have been with the use of intravenous oxytocin infusion and artificial rupture of membranes (aminiotomy) [(2)].

Oxytocin is the most frequently medication used for labor induction in obstetrics to increase uterine activity, in cases in where the labor process has failed, with the aim of enabling it to progress to a vaginal delivery effective in order to prevent and control postpartum hemorrhage in the third stage of labor [(3)].

Administration of oxytocin, especially at elevated doses, may have potential adverse effects on the mother and the fetus, such as uterine tachysystole and impairment of fetal heart rates. This is due to the decrease or disruption of the blood flow to the intervillous space during contractions [(4)].

As reported by [(5)], in the absence of complications, interventions during the physiological birth process increases likelihood of modifications for the mother and the fetus. They suggested the use of evidence-based clinical practice to encourage physiological birth, avoiding unnecessary induction and use of usual care measures, as well as unnecessary limitations.

However, a meta-analysis with 10 randomized controlled trials(10)stated that elevated doses of oxytocin for labor stimulation were associated with reduced rates of cesarean sections and shorter duration of labor, without increasing adverse outcomes to maternal and fetus[6].

According to [7], staff nurses had below average level of knowledge and poor level of practice on use of oxytocin. The knowledge and practice on use of oxytocin were related to each other. Knowledge on use of oxytocin was influenced by all the demographic variables other than maximum working experience in maternity unit and current area of working. It is concluded that as knowledge increases the better is the practice.

Study by [7] showed that 32.3% of staff nurses had adequate knowledge in the pretest and 95.4% of staff nurses had adequate knowledge in the post test regarding nursing care of women receiving oxytocin during labour. And another study by[8] concluded that pretest knowledge was 57.96% and the post – test knowledge score was 95.43%.

Moreover studies about knowledge on the use of oxytocin among staff nurses showed that 62.9% staff nurses had inadequate knowledge. There was no statistically significant association with the demographic variables [9].

Oxytocin is a serious medicine that needs close monitoring to avoid consequences as fetal respiratory distress caused by severe uterine contraction and uterine rupture. It also needs close monitoring to evaluate labor progress and to detect signs of failure of induction if they occur early [10].

So that the midwife should have knowledge about the indications, action, and side effects of these drugs as well as the nursing considerations related to each of them in order to plan and implement effective nursing process. Inappropriate administration may result in hyper stimulation of the uterus, which can lead to uterine rupture, fetal asphyxia, and/or fetal demise [9].

The fetus should be continuously monitored with cardio tocography (CTG) when the labour are accelerated with oxytocin. Continuous recording of duration, strengths and frequency of contractions. Continuous monitoring is compulsory and it is necessary to observe possible hyper stimulation. The rate of infusion should be decreased or discontinued whenever hyper stimulation is suspected [11].

Labor induction and augmentation should only be carried out by highly qualified health workers in facilities with access to emergency obstetric care due to increased risks of complications accompanying these procedures. The guidance of World Health Organization consider inappropriate use of oxytocin (e.g., administration of oxytocin prior to delivery in peripheral health centers or by low-level health workers) to be hazards because the dosage can be difficult to monitor and low-level employees and peripheral equipment's may not be able to monitor adverse effects. Inappropriate administration can lead to uterine hyper stimulation, leading to uterine rupture, fetal asphyxia, and/or fetal death [12].

Significance of the study:

Oxytocin remains the most common drug associated with preventable negative effects during childbirth and requires excellent nursing monitoring and close observation [4] so, any nurse midwives must have a sound knowledge and skills about nursing care to woman who is receiving an oxytocin infusion to give efficient nursing care to prevent complications. So, this study was done to evaluate the effect of educational program on improving nursing knowledge and practice regarding administration of oxytocin during labor.

Definition:

Stimulation with oxytocin is defined as the administration of oxytocin to improve and/or increase the frequency and intensity of contractions in women whose delivery begins spontaneously. Oxytocin perfusion consisted of a dilution of five units of oxytocin in 500 ml of saline. The perfusion started with the use of 6 ml/h, which was doubled every 30 minutes up to a maximum of 96 ml/h, until achieving adequate contractions. It is used in women with spontaneous labor onset, in situations in which there is low frequency and/or intensity of uterine contractions or when the expansion process has failed and not progressed; although it is also used in other cases to increase uterine activity and thus accelerate the delivery process [3].

Aim of the present study

The aim of the present study was to evaluate the effect of educational program on Improving nursing Knowledge and practice regarding administration of oxytocin during labor.

Hypothesis:

It was hypothesized that the intervention program will improve the knowledge and practice regarding nursing care of administration of oxytocin during labor.

Subjects and methods

Study design: A quasi-experimental design was used in the present study

Study setting:

The study was conducted in the maternity hospital at Zagazig University Hospital, Sharkia Governorate, Egypt.

The reasons given for choosing the above mentioned setting, because women attending for receiving high natal care, also they cover a wide range of population with different socio-demographic and obstetrical characteristics as well as the flow rate was high.

Study subjects:

Group I: Parturient women in normal labor (30 women in pre-intervention and another 30 in post intervention).
Participants Criteria:
1-Primiparous and multiparous, with spontaneous labor
2-Delivery at full term,
3-Low-risk pregnancy and childbirth,
4- Spontaneous onset of labor,
5- And single fetus with cephalic presentation.
Excluded criteria:
1- Women with induced labor and those who were not in labor due to elective or emergency cesarean section.
2 - Pregnant women with malpresentation and malposition.
3- Fetal with congenital malformation.
4- Multiple pregnancy.
Group II: Nurses: All nurses provided direct nursing care for women during labor in the above mentioned setting. They were 30 nurses at different age and years of experience as well as, different qualifications.

Tools of data collection
The data collection tools for this study were composed of four tools; these included parturient women assessment sheet as well as knowledge questionnaire sheet, observational checklist for nurses' practice as well as intervention program.

Tool I: Parturient women assessment sheet:
It consisted of two parts:
First part: it was included information about their socio-demographic characteristics (such as age, education, occupation, and income). Second part: maternal and fetal outcomes such fetal distress in 2nd stage of labor, uterine hyperstimulation, perineal tears, maternal exhaustion, bleeding, Birth injuries and Apgar score at 1st and 5th minute.

Tool II: Knowledge questionnaire sheet:
It consisted of two parts: First part: Socio-demographic characteristics of nurses include their ages, qualifications, years of experience in maternity department and attendance of training courses about administration during labor.
Second part: The Knowledge questionnaire sheet for assessment nurses' knowledge throughout intervention program included 32 questions and divided to three maim parts:
- Definition of labor, stages, management.
- Labor induction and augmentation
- Administration of oxytocin: action , route of administration, adverse effects for fetus, adverse effects for mother, side effects, contraindication and role of nurse when oxytocin is administered.

Questions were scored as follows score 1 for correct answer and score 0 for wrong or no answer. Summation of all questions including knowledge. The total score of each aspect equal 60-75% indicates average level of knowledge. And the total score of each aspect less than 50% indicates poor knowledge level.

Tool III: An observational checklist for nurses' practice:

A clinical observational checklist was conducted by the researchers from nursing review, as well as from previous experience with the nurses in clinical setting. It was performed through observations of nurses during caring of women from the starting of oxytocin administration during labor and performed two times pre and post applying the intervention program.

It includes the following items:
- Prepare the necessary equipment.
- Explain procedure to the women and maintain privacy
-Make sure that the woman who will receive oxytocin is free from any risk factors (contraindications)
- Check the patient's vital signs, position of fetus, uterine contraction, cervical dilatation and fetal heart sounds before starting the infusion
- Hand washing & wearing gloves.
- Assist her to lie in the proper position and drop her.
-Connect the woman with fetal monitor (A minimum of 20minutes of fetal monitoring before starting the infusions is essential)
- Insert the cannula in the right hands and fix it. Connect the prepared I.V. fluid with the inserted
- Prepare the I.V. fluids and dilute the oxytocin as doctor order and make sure that the oxytocin solution is labeled
-Start oxytocin infusion according to hospital protocol or physician's written orders:
-Assess and record the woman's blood pressure, uterine contractions (frequency, duration, intensity) and fetal heart rate before each increase in oxytocin dosage.
- Increase the dosage of oxytocin gradually by 1 to 2mu/min. Increase the infusion rate by 10 drops per minute every 30 minutes.
-Maintain this rate until delivery is completed.
-Assess the client for possible adverse reaction to oxytocin such as nausea, vomiting, headache…etc
-Discontinue the oxytocin infusion and notify a physician if maternal or fetal complications have been developed
- Record general observation patient's reaction and complaint
-Remove the equipment
-Complete oxytocin infusion after delivery and observe any signs of postpartum hemorrhage

-Record intake and output.
- Wash your hands
    The scoring system for the observational check-list consisted of giving score 1 for the step that was done, and score zero for the step that wasn't done. The higher scores indicated a higher level of practices. Those score classified as: poor (<50%), Average (60-75%) and Good (≥75%).

Tool IV: Intervention program:
A self-learning booklet was prepared by the researcher and its contents was validated and then distributed to nurses to be used as a guide for self-learning to upgrade their knowledge and practice pertaining to oxytocin administration during labor.

Validity and reliability

It was established for face and content validity by a panel of five expertises in obstetrics and gynecological nursing who revised the tools for clarity, relevance, applicability, comprehensive-ness, understanding, and ease for implementation and according to their opinion minor modifications was applied. Reliability was done by Cronbach's Alpha Coefficient Test which revealed that each item of the utilized tools consisted relatively homogeneous items.

Field of the work:

First phase: data collection took a period of 6 months, from the first of October 2018 to the end of March 2019. After getting the official permission, the pilot testing of the study tools was done and analyzed. The researcher started the data collection for 3 days per week.

The program consisted of 10 sessions lasts for 12 weeks. The number of nurses in each session was only 5 nurses in order to facilitate the learning process and allow every nurse to participate in the discussion as well as ensure adequate supervision. Sessions were conducted for nurses during the morning or the afternoon shift. The session started at 11AM.and end at 1 PM. or started at 12PM. and end at 2 PM. It was the most suitable time for the nurses after they have completed their duties.Each session ranged from 30- 60 minutes

- Firstly orientation about the program and then a pretest self-administered questionnaire was prepared and distributed to nurses, to study their existing level of knowledge and practices regarding oxytocin administration during labor(first1- 2 weeks)
- Discussion about physiology of normal labor, stages and management of labor(3-4 weeks)
- Labor induction and augmentation, administration of oxytocin: Action, route of administration, adverse effects for fetus, adverse effects for mother, side effects, contraindication and role of nurse when oxytocin is administered (5-6 weeks).
- steps of oxytocin administration during labor ,maternal and fetal assessment(7-8 weeks)
- Continue assessment after delivery for women and newborn(fourth stage of labor)(9-10 weeks)
- Revision last two weeks

Then: All nurses were tested using the same format of the pretest "Posttest" and the result was obtained.

A pilot study

A pilot study for tools of data collection was carried out in order to test whether they are clear, understandable, feasible and valid. For this study, the researcher randomly selected 5 staff nurses to participate in the pilot study. Also it helped estimation to the time needed for data collection. No modification was done and the sample was added to the total study. The researcher was observing nurses practical skills about the studied procedures. The time needed to complete the checklist depended on the time of the procedure.

Ethical considerations and administrative design:

An official letter from the Faculty of Nursing, Zagazig University was directed to the responsible authorities to obtain their permission to conduct the study after explaining its purpose. The aim of the study was explained to each parturient women and nurse. An oral agreement for participation in the study was gained. Those who agreed to participate were assured about confidentiality, privacy and their right to leave the study at any time.

Statistical analysis:

All data were collected, tabulated and statistically analyzed using SPSS 20.0 for windows (SPSS Inc., Chicago, IL, USA). Quantitative data were expressed as the mean ± SD & (minimum- maximum), and qualitative data were expressed as number & (percentage). Paired t test was used to compare between two dependent variables. McNemar test was used to compare categorical between two dependent variables. Percent of categorical variables were compared using fisher exact test. Pearson correlation coefficient was calculated to assess relationship between various study variables, (+) sign indicate direct correlation & (-) sign indicate inverse correlation, also values near to 1 indicate strong correlation & values near 0 indicate weak correlation. All tests were two sided. P-value < 0.05 was considered statistically significant (S), and p-value ≥ 0.05 was considered statistically insignificant (NS).

II.Results

Table (1): Distribution of studied nurses according to their socio-demographic characteristics.

Items	No	%
Age per years		
>25	16	53.3
≤25	14	46.7
mean± SD	25.2±5.8	
Minimum -maximum	18-38	
Nursing qualification		
Nursing school diploma	14	46.7
Technical institute	9	30.0

Bachelor	7	23.3
Job position		
Staff nurse	23	76.7
Head nurse	7	23.3
Experience per year		
>5	22	73.3
≤5	8	26.7
mean± SD	4.3±2.8	
Minimum -maximum	1-15	
Previous training courses in giving oxytocin		
Yes	4	13.3
No	26	86.7

Table (1) shows that the mean age of the nurses was 25.2± 5.8 years. Concerning nurses' qualification, it was noticed that nearly half of nurses (46.7%) had nursing school diploma. According to nurses' years of experience, it was revealed that 73.0% had more than 5 years of experience. Finally, according to training courses about oxytocin, the majority (86.7%) of nurses hadn't attended any training courses.

Table (2): Comparison of Nurse's correct knowledge percent pre and post intervention program about oxytocin during labor.

Items	Correct answer				
	pre		post		*p
	No	%	No	%	
Definition of NVD	19	63.3%	22	73.3%	0.58
Definition of the first stage of labor	8	26.7%	19	63.3%	0.003*
Action of oxytocin	11	36.7%	19	63.3%	0.057
The time of giving oxytocin	7	23.3%	17	56.7%	0.006*
The route of administration of oxytocin during labor	30	100.0%	30	100.0%	0.267
The dose of oxytocin	12	40.0%	17	56.7%	0.227
Effect of oxytocin on labor	22	73.3%	27	90.0%	0.012
The indications of use of oxytocin	11	36.7%	19	63.3%	0.039
Contraindications of oxytocin	15	50.0%	24	80.0%	0.077
Adverse effect of oxytocin on women	12	40.0%	18	60.0%	0.146
Adverse effect of oxytocin on fetus	7	23.3%	17	56.7%	0.031
The maternal factors that influence augmentation of labor with oxytocin	6	20.0%	17	56.7%	0.001*

The fetal factors that influence augmentation of labor with oxytocin	8	26.7%	14	46.7%	0.146
Contraindications for augmentation of labor with oxytocin	16	53.3%	22	73.3%	0.146
The side effects of oxytocin	18	60.0%	24	80.0%	0.11

Mc-Nemar test   * Statistically significant

Table (2) shows that the nurse's had correct knowledge about giving oxytocin during labor throughout the intervention program. Only 26.7% of nurses able to correctly answer the definition of first stage of labor jumped to 63.3% after the intervention program. This difference was statistically significant (p=0.003). Related to the action of oxytocin, 36.3% of nurses mentioned correct answer in pretest compared to more than half of nurses (63.3%) in posttest. There was no statistically significant difference (p=0.58). Concerning the time of giving oxytocin, only 23.3% of the nurses had correct answer, this percentage rose to 56.7% after the intervention program with statistically significant difference (p=0.006). Regarding the effect of oxytocin on labor, 73.3% of nurses had correct answer in pretest compared to 90.0% in posttest. As formaternal factors that influence augmentation of labor with oxytocin, only 20.0% of nurses had correct answer in pretest compared to 56.7% in posttest with statistically significant difference (p=0.001).

Table (3): Comparison of Nurse's correct practice percent pre and post intervention program about oxytocin during labor.

Items	Correct answer				
	pre		post		*p
	No	%	No	%	
Prepare equipment	18	60.0%	25	83.3%	0.065
Explain procedure to the women and maintain privacy	6	20.0%	14	46.7%	0.021
Make sure that the woman free from contraindications to oxytocin	6	20.0%	10	33.3%	0.289
Check the patient's and fetal conditions	0		5	16.7%	0.063
Hand washing & wearing gloves	6	20.0%	9	30.0%	0.375
Assist her to lie in the proper position and drop her	6	20.0%	20	66.7%	0.001*
Connect the woman with fetal monitor	6	20.0%	7	23.3%	0.99
Insert the cannula in the right hands and fix it	19	63.3%	24	80.0%	0.267
Prepare the I.V. fluids and dilute the oxytocin as doctor order and make sure that the oxytocin solution is labeled	8	26.7%	18	60.0%	0.0021
Start oxytocin infusion according to hospital protocol or physician's written orders	6	20.0%	21	70.0%	0.0001*
Assess and record the woman's blood pressure, uterine contractions and	18	60.0%	30	100.0%	0.0001*

fetal heart rate before each dose					
Increase the dosage of oxytocin gradually by 1 to 2mu/min	0		12	40.0%	0.0001*
Maintain this rate until delivery is completed.	16	53.3%	25	83.3%	0.004*
Assess the client for possible adverse reaction to oxytocin such as nausea, vomiting, headache…etc	6	20.0%	14	46.7%	0.021*
Discontinue the oxytocin infusion and notify a physician if maternal or fetal complications	0		12	40.0%	0.0001*
Record general observation patient's reaction and complaint	6	20.0%	17	56.7%	0.007
Remove the equipment	0	0	9	30.0%	0.0001*
Complete oxytocin infusion after delivery and observe any signs of postpartum hemorrhage	6	20.0%	24	80.0%	0.0001*
Record intake and output.	0	0	21	70.0%	0.0001*
Wash your hands	12	40.0%	24	80.0%	0.002*

Mc-Nemar test   * Statistically significant

Table (3) reveals that the nurse's had correct practice about giving oxytocin during labor after the intervention program. The majority (83.3%) of nurses able to correctly prepare the needed equipment after implementation of the program compared to 60.0% before it. Only 20.0% of nurses make sure that the woman free from contraindications to oxytocin pretest which jumped to 33.3% in posttest with no statistically significant differences. More than two thirds (70.0%) of nurses started oxytocin infusion according to hospital protocol or physician's written orders posttest compared to 20.0% of the nurses pretest with statistically significant difference (p=0.0001). All nurses assessed and recorded the woman's blood pressure, uterine contractions and fetal heart rate before each dose after the program with comparison to 60.0% in pretest. This difference was statistically significant (p=0.0001). Concerning washing hands after the procedure, 40.0% of nurses were washing hands in pretest jumped to 80.0% in posttest with statistically significant difference (p=0.002).

Table (4): Comparison of Nurse's total knowledge and practice pre and post intervention.

	pre	post	Mean difference	Paired t	p
Knowledge level					
Average	0	19(63.3)			
Poor	30(100)	11(36.7)			
mean± SD	12.7±2.7	21.8±3.3	9.1(41.7%)	12.7	0.0001*
Minimum -maximum	9-20	16-27			
Practice level					
Average	0	22(73.3)			

Poor	30(100)	8(26.7)			
mean± SD	4.6±1	11.4±2	6.77(48.4%)	16.6	0.0001*
Minimum -maximum	3-6	7-14			

* Statistically significant   - poor level (< 50%)   - Average Level (> 50≤ 75%)

Table (4) describes the improvement in thetotal knowledge and practice pre and post intervention, with an extremely statistically significant difference (p<0.0001). All nurses had poor knowledge and practice level pre intervention which improved to averagelevel post intervention (63.3% &73.3% respectively).

Table (5): Association between knowledge and practice score after intervention program of studied nurses.

	Post. Knowledge score
Post- practice. score	
Pearson Correlation®	0.826
P value	0.000*

* Statistically significant

Table (5) reveals that there was statistically significant positive correlation between nurse's knowledge and practice score after implementation of the program (P<0.000).

Table (6): Comparison between nurse's knowledge average and poor level regarding maternal and fetal outcome.

	Post knowledge level		p
	Average(n=19) No(%)	Poor(n=11) No(%)	
Fetal distress in 2nd stage of labor yes no	1(5.3) 18(94.7)	7(63.6) 4(36.4)	0.001*
Uterine hyper stimulation yes no	2(10.5) 17(89.5)	8(72.7) 3(27.3)	0.001*
Perineal tears yes no	2(10.5) 17(89.5)	8(72.7) 3(27.3)	0.001*
Maternal Exhaustion yes no	4(21) 15(79)	9(81.8) 2(18.2)	0.002*
Bleeding yes no	2(10.5) 17(89.5)	0 11(100)	0.52

Birth injuries			
yes	0	4(36.4)	0.012
no	19(100)	7(63.6)	
Apgar score at 1st minute			
Normal	14(73.7)	7(63.6)	0.68
Abnormal	5(26.3)	4(36.4)	
Apgar score at 5th minute			
Normal	14(73.7)	8(72.7)	099
Abnormal	5(26.3)	3(27.3)	

* Statistically significant   Fisher exact test

Table (6)demonstrates a positive relation between nurse's knowledge average and poor level with maternal and fetal outcome. Fetal distress in 2nd stage of laborwas foundin 63.6% of nurses who had poor knowledge levelcompared to only 5.3%of nurses who had average level of knowledge.This difference was statistically significant (p=0.001). Moreover,uterine hyperstimulation, perineal tears and maternal exhaustion were occurred in (72.7%, 72.7% &81.8% respectively) of nurses who had poor knowledge levelcompared to (10.5%, 10.5% &21.0% respectively) of nurses who had average level of knowledge. These differences were statistically significant (p=0.001, 0.001&0.002). As for the newborn, Apgar score at 1st and 5th minute was normal in 73.7% of nurses who had average level of knowledge with no statistically significant differences.

Table (7): Comparison between practice average and poor level regard maternal and fetal outcome.

	Post .practice level		p
	Average(n=22) No(%)	Poor(n=8) No(%)	
Fetal distress in 2nd stage of labor			
Yes	3(13.6)	5(62.5)	0.016
No	19(86.7)	3(37.5)	
Uterine hyperstimulation			
Yes	4(18)	6(75)	0.007*
No	18(82)	2(25)	
Perineal tears			
Yes	4(18)	6(75)	0.007*
No	18(82)	2(25)	
Maternal Exhaustion			
Yes	6(27.3)	7(87.5)	0.009*
No	16(72.7)	1(12.5)	
Bleeding			
Yes	2(9)	0	0.99
No	20(91)	8(100)	
Birth injuries			
Yes	2(9)	2(25)	0.02*

No	20(91)	6(75)	
Apgar score 1st minute			
Normal	17(77.3)	4(50)	0.19
Abnormal	5(22.7)	4(50)	
Apgar score 5th minute			
Normal	17(77.3)	5(62.5)	0.64
Abnormal	5(22.7)	3(37.5)	

* Statistically significant   Fisher exact test

Table (7)reveals a positive relationship between practice average and poor level with maternal and fetal outcome. Fetal distress in 2nd stage of laborwas presentedin 62.5% of nurses who had poor practice levelcompared to 13.6%of nurses who had average level of practice with no statistically significant difference (p=0.016). Also, uterine hyperstimulation, perineal tears and maternal exhaustion were occurred in (18.0%, 18.0% &27.3% respectively) of nurses who had average practice levelcompared to (75.0%, 75.0% & 87.5% respectively) of nurses who had poor practice level. These differences were statistically significant (p=0.007, 0.007&0.009). As for the newborn, Apgar score at 1st and 5th minute was normal in 77.3% of nurses who had average practice level with no statistically significant differences.

III.Discussion

Oxytocin is one of the most frequently used drugs in obstetrics, but it is also the drug accompanied with the most preventable adverse events in childbirth. All midwives bear a huge obligation when they administering drugs, since these may affect not only on the mother but also on the fetus during delivery and on the newborn. As an active member in the care group, midwife plays an essential role in detecting the changes of oxytocin use. Nurses particularly the midwife, should be very careful when administering the oxytocin and follow it up with full monitoring as, it can be harmful to the life of both the mother and fetus [13].

According to the results of the current study it can be noticed that, more than half of nurses were above 25 years with a mean age of 25.2± 5.8 years. Nearly half of nurses (46.7%) had graduating nursing school diploma. More than two thirds of them had more than 5 years of experience. Finally, the majority of nurses hadn't attended any training courses in giving oxytocin during labor.This is congruent with [7] study in Chennai aboutassessment of the knowledge and practice on use of oxytocin among nurses working in selected hospitals whoshowed that the majority of the staff nurses were in age group of 21 -30 years.

This is also matching with the study of[9] aboutassessment of nurses' knowledge regarding oxytocin administration during labor at maternity hospitals in Al-Kut City who indicated that 62.9% of nurses had no training in the administration of oxytocin during labor and 52.9% of them had more than 5 years of experience.

The current study revealed that the overall percentage of adequate knowledge of nurses related to giving oxytocin during labor improved with a significant difference after the intervention program. These results were supported by [14] who conducted a study to assess the knowledge of nurses midwives regarding nursing

care of a women receiving oxytocin drug during labour in El Ribat who stated that, 32.3% of staff nurses had sufficient pretest knowledge and 95.4% of staff nurses had posttest adequate knowledge concerning nursing care of women receiving oxytocin during labor.

The same results were also observed by [15] who evaluate the knowledge and practice of oxytocin induction and quality of delivery care among staff nurses working in maternity ward. The results of the research concluded that, 61.6% of nurses had insufficient knowledge.

The present study also showed an improvement in nurse's practice level about giving oxytocin during labor after the intervention program.This is in agreement with [7] who done a study to evaluate the knowledge and practice of administering oxytocics during labor among staff nurses, in Mangalore and reported that 72.9% of the staff nurses had insufficient knowledge and 66.2% of them had bad practice regarding administration of oxytocics during delivery.

The present study finding revealed that,there were improvement in thetotal knowledge and practice pre and post intervention, with an extremely statistically significant difference. All nurses had poor knowledge and practice level pre intervention which improved to average level post intervention. Additionally, there was statistically significant positive correlation between nurse knowledge and practice score after implementation of the program.

This corresponds well with the study of [8]who performed a descriptive study to evaluate the knowledge of staff nurses on oxytocin during the first stage of labour. The results of the research founded that the knowledge in pretest was 57.96% and the posttest knowledge score was 95.43%. This coincide with the study of [16] about knowledge and practice on oxytocin administration techniques among staff nurses working in maternity hospitals in Al-Hillah City who emphasized that more than half of the staff nurses had insufficient knowledge and poor practice.

This also in harmony with the study of [7] who pointed out a strong positive correlation between knowledge and practice among the nurses at a significance level of $p < 0.001$. In addition, 46.7% of the nurses had poor level of knowledge and 35% of them had average level of information about oxytocin use and 45% of the staff nurses had bad practice and 32.5% of the staff nurses had moderate practice on the administration of oxytocin.We can deduce from the above results that the knowledge affected the practice. Staff nurses with less than average knowledge had poor practice while, staff nurses with higher than average knowledge had excellent practice.

The results of the present study demonstrated a positive relation between knowledge and practice average and poor level with maternal and fetal outcome. This is comparable to that reported by [17] who performed a descriptive research to investigate the labor outcome and its relationship to oxytocin mismanagement. The findings indicated that 68.5% of bad fetal outcome and complication was associated with unfair use of oxytocin.

Nurses on the laboring women's bedside create a choice on oxytocin titration based on their nursing evaluation. These choices are based on a sound knowledge of oxytocin's pharmacological characteristics of uterine contraction and female and fetus reaction to contraction. Misuse of labor inducing drugs as oxytocin was recognized as contributing to maternal and neonatal mortality. The use of labor inducing drug by inadequately qualified healthcare workers has serious implications for mothers and children [18].

VI.Conclusion:

From the results of the present study, it was concluded that staff nurses had below average level of knowledge and poor level of practice on oxytocin use in pretest. There was a statistically significant high positive correlation between knowledge and practice among the staff nurses. The knowledge and practice on use of oxytocin were related to each other. In the fact, as awareness increases the better is the practice.

V.Recommendations:

- The staff nurse must be provided orientation about obstetrical and gynecological drugs.
- Develop standard policy/protocol or guidelines concerning medication administration of oxytocin and encourage the nurses to promote the knowledge.
- Clinical demonstration should be conducted regarding the use of oxytocin to enhance the practical skills level of nursing employees.
- Encourage continuing education program for nurses by using different strategies of education regarding safe medication administration during labor and postnatal.

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