

AMNIOINFUSION IN LABOR INDUCTION OF TERM PREGNANCIES WITH PREMATURE RUPTURE RUPTURE OF THE MEMBRANES AND LOW AMNIOTIC FLUID

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ABSTRACT

Objective: To evaluate the effect of prophylactic amnioinfusion in term pregnancy with (PROM) and low (AF) volume prior to labor induction.

Method: 120 women with amnioinfusion and 136 in a control group with term pregnancy and low (AF) were admitted for induction of labor in Basra maternity hospital were studied. Amnioinfusion of normal saline (N/S)37C° was realized in the study group of about 500ml/hr through transcervical catheter, while the control group received identical obstetric care except in aminoinfusion.

Results: Both studies groups were similar in age, parity, gestional age and interval from rupture membranes until induction while we found that the studied group had less length of labor with decrease risk of (C.S), low maternal complications and less neonatal complications such as apgor score, admission to (NICU), MAS and neonatal death and the difference was statistically significant.

Conclusion: We concluded that prophylactic amnioinfusion improve neonatal outcome and decrease the maternal complications when used in labor induction of term pregnancy with PROM and low AF volume.

INTRODUCTION

Amnioinfusion can be defined as fluid instillation into the amniotic cavity through a catheter, usually performed transcervically during the intrapartum period⁽¹⁾. Amnioinfusion is a method of intrauterine resuscitation that may be considered for patients with variable decelerations, oligohydromnious, or meconium-stained amniotic fluid, variable or prolonged deceleration caused by cord compression complicated approximately 50% of labors. Cord compression brings about reduction in blood flow and therefore oxygenation leading to FHR decline⁽²⁾. Prior to amnioinfusion membranes must be ruptured and IUPC

inserted, sterile lacted ringers solution or normal saline (0.9Nacl) in 1000ml berg have been used⁽³⁾. The most possible complications of amnioinfusion are polyhydraminous, prolapsed cord, abnormally high intrauterine pressure, abruptio placentae, infection, maternal chilling, fetal bradycardia, fetal tachycardia, so we should use a fluid warmer especially when the fetus is preterm⁽⁴⁾.

AIM OF STUDY

The aim of our study to find the pregnancy and neonatal outcome and to analyze the utility of prophylactic amnioinfusion in

term pregnancy with PROM and low AF volume in labor.

MATERIALS & METHODS

This study was performed prospectively at Basra maternity and child hospital from Jan. 2008 till Jan. 2010. Basra maternity and child hospital performs an average of 13:000 deliveries annually. We select (256) women who were entering the laboring ward randomly. Informed consent was obtained and the patients were assigned to contral or prophylactic amnioinfusion group and after their consent had been obtained, they were randomized into two groups, amnioinfusion and no amnioinfusion (contral group). The inclusion criteria were labor due to PROM not more than 24hrs as ultrasound shows with low AF volume, singleton term pregnancy with no adverse medical or obstetrical problems at the first stage of labor, vertex presentation, their gestational age was recorded. The criteria for exclusion were multiple pregnancy, fetal anomalies, imminent delivery, fetal distress, placenta previa, Abruptio placentae or any vaginal bleeding of unknown etiology, or the presence of uterin scar and no other medical problems as D.M. PE ...etc. All patients in the study received standard labor management. In the study group transcervical amnioinfusion with N/S solution at room temperature through fluid filled folly's catheter patients received 500 C.C N/S/hr until fully cervical dilation was achieved. Vaginal examination was performed to rule out the over distention of the uterus. The neonate was evaluated in all cases by pediatrician with apgor score calculated at 1 and 5 minutes. Other outcome parameters including birth weight, MAS, admission to NICU was recorded. The maternal outcome was observed, the rate of operative delivery and labor character, the presence of maternal complications all were recorded. All studied mothers were kept in hospital for 24hrs postdelivery. Statistical analysis was performed by applying the student t test to compare the

mean and the X^2 test to compare proportions.

RESULTS

A (256) women were studied of whom 120 patients received amnioinfusion and 136 served as a contral group. A comparison of the two groups revealed no significant difference in age, parity, gestational age, BMI, Initial Bishops core, ANC attendance, patients with moderate or thick muconium during labor, interval from rupture of membranes until induction, while the patients in the contral group had a significant prolonged labor, increase rate of C.S ($P < 0.05$), there were a significant difference in maternal complications of both groups. Regarding mode of delivery amnioinfusion was successful in reducing the rate of the operative delivery for fetal distress, while the study of neonate reveals that there was no predominance of male sex in both groups, the birth weight of the infants in both groups were statistically not significant but there is increase of lower apgor score after 5 minits, NICU admission, MAS and fetal death in contral group in comparison with studied group and the difference was significant.

DISCUSSION

Amnioinfusion has been used both for prophylactic and therapeutic purpose⁽⁵⁾. In the present study there was a specific design that we studied patients with an adequate volume of fluid before the rupture of membranes known because of a normal ultrasound amniotic fluid in current third trimester and prior to PROM, that had labor induction with in the next 24 hours after PROM. This period of limited latency for the spontaneous onset of delivery will allowed with the intention of ovoiding potential complications arising from prolonged PROM. The technique of amnioinfusion used in this study was similar to that used by Macri *et al* who demonstrated that saline solution increase the amniotic fluid index by a mean of \pm SD of 8.2 ± 2.2 Cm⁽⁶⁾. There were no

significant difference regarding maternal age, parity, BMI, Bischope study score and this agrees with Ciolone study *et al* ⁽⁷⁾. The length of labor is longer in the contral group, there was also a higher requirement of oxytocin Augmentation and this was different from previous studies which reported no significant difference between to groups regarding this factor ⁽⁸⁾. Also there were a significant reduction in the rate of C.S in the study group and this was different from the results reported by Miyasaki ⁽⁹⁾. In the cases analyzed, we observed a statistical differences in the rate of PPH, retained placenta and early puerperal infection between the two studied groups though there is a controversy over the role played by amnioinfusion in this respect Owen *et al* ⁽¹⁰⁾, in 1990 found no reduction in the rate of post-partum endometrities in the treated group described as a probable consequence of the irrigating effect of amnioinfusion on the other hand, Ogundipe *et al* ⁽¹¹⁾, 1994 described a higher rate of intrapartum fever in amnioinfusion group, this was explained among other reasons, by the reduction in the bacteriostatic Property of the AF when diluted or washed out with continous saline solution. The analysis of fetal outcome in this study indicated that amnioinfusion will

improved neonatal outcome and apgor score in one and 5 minutes and also statistically the difference was significant and this was not proved by other study such as Nancy *et al* 1994 ⁽⁸⁾. Also there is a reduction in MAS, admission to NICU and neonatal death in amnioinfusion and this was agreed with other study done by Schrimmar *et al* 1991 ⁽¹²⁾. Who demonstrated also a decrease in the incidence of neonatal academia and a significant higher average umbilical artery Ph and relief moderate or sever variable deceleration during labor which cannot confirmed in our study due to the lack of these facilities. To conclude our study we suggest the use of prophylactic amnioinfusion in labor, induced at term with PROM not more than 24 hrs with low AF volume which provides a safe and economical way of improving neonatal, maternal outcome, by decreasing in the umbilical cord compression during labor. which lower the incidence of fetal hypoxia and academia which may decrease the incidence of intrapartum neonatal complications, gasping and death. A so amnioinfusion is alogic, safe, simple accomplished and did not require special equipment.

TABLES:

Table -1- Patients demographic characters

Character	Study group No = 120		Contral group N = 136		P. value
	No	%	No	%	
Maternal age year (mean)	37 ± 3.4		35 ± 2.8		N.S
Parity					
Primi	80	66.6	84	61.7	N.S
Multipara	40	33.4	52	38.3	N.S
G.A (weeks)	38 ± 1.3		38 ± 1.9		N.S
BMI	31 ± 5.6		32 ± 4.2		N.S
Initial Bischope score	4 ± 1		4 ± 1.5		N.S
ANC	56	46.6	62	45.5	N.S

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Table -2- Labor and delivery criteria with maternal outcome

		Study = 120		Control = 136		P-value
Rupture membrane (min)		1245 ± 65		1192 ± 105		N.S
Length of labor (min)		586 ± 150		898 ± 172		<0.05
Muconium Moderate to thick		10	8.3	12	8.8	N.S
Oxytocin use		80	66.6	104	76.4	<0.05
Mode of delivery	NVD	102	85	94	69.2	N.S
	Instrumental	4	3.3	6	4.4	N.S
	C.S	14	11.7	36	26.4	<0.05
Fetal distress		6	5	18	13.2	<0.05
Primy		4	66.6	12	66.7	N.S
Multipara		2	33.4	6	33.3	N.S
Cervical dysttokia		4	3.3	10	7.4	<0.05
Failure to progress		4	3.3	8	5.9	<0.05

Table -3- Maternal complications

	Study group 120		Contral group 136		P.value
	No	%	No	%	
PPH	2	1.6	16	11.7	0.05
Retained placenta	0	0	8	6.8	0.05
Infection	0	0	14	10.2	0.05
Hospitalization mean day	2	1.6	6	4.4	0.05

Table -4- neonatal outcome

		Study group 120		Contral group 136		P.value
		No	%	No	%	
Sex	♀	52	43.3	60	44.1	N. S
	♂	68	56.7	76	55.9	N.S
Birth weight grams (mean)		3244 ± 319		3310 ± 412		N.S
Apgar score >7						
1 (min)		40	33.3	78	57.3	0.05
5 (min)		6	5	38	27.9	0.05
NICU		10	8.3	42	30.8	0.05
MAS (No)		6	5	26	19.1	0.05
Neonatal death		0	0	6	4.4	0.05

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بزل السائل الأمينوسي الوقائي في حالات الولادة المكتملة التي تعاني من انغلاق الامينوسي مع قلة السائل

الخلاصة

اهداف البحث: لمعرفة تأثير بزل السائل الامينوسي الوقائي في حالات الولادة المكتملة والتي تعاني من انفلاق السائل الامينوسي مع قلة السائل قبل البدء بتحفيظ عملية الولادة.

الطرائق:- حوالي ١٢٠ مريضة اجري لها عملية بزل السائل الامينوسي والتي تعاني من الولادة المكتملة مع قلة السائل والتي أدخلت إلى صالة الولادة لتحفيظ الولادة حيث قورنت مع (١٣٦) حالة ولادة مكتملة مع كمية كافية من السائل الامينوسي . أجريت عملية البزل بواسطة سائل السلاين (N/S) بدرجة حرارة ٣٧ درجة مئوية حيث ادخل حوالي ٥٠٠ ملتر عن طريق أنبوية التبول خلال عنق الرحم وكل الحالات عولجت بنفس الأسلوب ماعدا البزل.

النتائج :- اختبرت الحالات مع حالات المقارنة من حيث العمر ، عدد الولادات ، مدة الحمل ، نفس المدة مع انفلاق الأغشية لغاية عملية تحفيظ الولادة حيث وجد أن الحالات التي اجري لها البزل اقل نسبة للولادة بالعملية القيصرية، مع اقل مدة للولادة و اقل مضاعفات للأمهات والمواليد مثل (ابجر سكور) (Apgar score) والدخول إلى قسم العناية المركزة للمواليد حديثي الولادة ، استنشاق السائل الملون بالعق ، ونسبة وفيات المواليد.

الاستنتاجات :- أن بزل السائل الامينوسي الوقائي سوف يقلل من مضاعفات ووفيات المواليد و يقلل من مضاعفات الأمهات إذا استخدم لحالات تحفيظ الولادة والتي تعاني من حالة الولادة المكتملة مع انفلاق السائل الامينوسي وقتله.