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Comparing the Efficacy of Dates and Oxytocin in the Management of Postpartum Hemorrhage.

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Abstract:

Introduction: The aim of study was a comparison between dates and oxytocin in prevention of postpartum hemorrhage. In modern obstetrics, general trend to utilize non-aggressive treatment methods that is quite safe, cheap and few symptoms. Date fruit has Calcium, serotonin, tannin, glucose that they are important for bleeding control.

Materials and Methods: This study was performed in Imam Reza and Hazrat Zainab Hospitals, Mashhad University of Medical Science. It was clinical trial that was performed on 62 women delivered in hospital. Immediately after placental delivery, 50 gram oral Deglet Noor dates (group 1) and 10 unit of intramuscular oxytocin (group 2) were given. At the same time a Plastic and a cotton sheet were widen under the patients and a pad was placed on the perineum to absorb blood or fluid. All pads were collected until 3 hour after placental delivery and were weighed every one hour. The difference, before and after weight was calculated. (100 gram increase in weight was considered to be equivalent to 100 ml blood).

Result: Blood loss mean in the end of first hour after delivery were significantly different in dates and oxytocin groups (104 ml vs 141.6 ml, $p=0.043$), But in second and third hour were not significant, although the bleeding in dates group was less. In whole three hours after delivery the blood loss mean in dates group was significantly less than oxytocin group (162.5 ml vs 220.7, $p=0.02$).

Conclusions: Use of oral dates after delivery decreases bleeding more than intramuscular oxytocin and it's a good alternative in normal delivery.

Key Words: postpartum hemorrhage, oxytocin, dates.

Introduction:

Every year, about 210 million women become pregnant. Postpartum hemorrhage (PPH) is one of the major complications of pregnancy, accounting for 14 million cases annually. Of these, it is estimated that around 140,000 women die, resulting in a case fatality rate of 1%⁽¹⁾. Adequate attendance to this complication can mean the difference between life and death⁽²⁾. Therefore Postpartum hemorrhage is a significant cause of maternal morbidity and mortality⁽³⁻⁵⁾.

The World Health Organization defines postpartum hemorrhage as blood loss of 500 mL or more in the first 24 hours postpartum^(1,5,6). Most postpartum hemorrhages are caused by uterine atony and occur in the immediate postpartum period^{5,6} and without warning even in women without any of the known risks for this condition⁽¹⁾. Active use of oxytocin to reduce blood loss after delivery initially started in 1930 and today it is used all over the world for this purpose. It is claimed that oxytocin not only shorten the third stage of delivery but also prevent uterine atony and blood loss after delivery^(7,8). It has been reported that its prophylactic recommendation reduces the blood loss after delivery from 10% to 6%. In other words, it can reduce it by 40%⁽⁹⁾. Studies found oxytocin to be preferable to misoprostol in settings where active management is the norm. However, secondary clinical effects may prove more troublesome with oxytocin than with misoprostol, and misoprostol may prove to be more practical and equally effective in low-resource settings⁽⁴⁾. Of course, in a study controlled taking of oxytocin rather than care was no dif-

ferent¹⁰, but in the most controlled studies its effect on reducing blood loss after delivery was widely accepted^(9,11,12). Inappropriate use of oxytocin can sometimes produce potential critical dangers. For instance, an intravenous bolus of 10 units of oxytocin marked fall in arterial blood pressure which can be dangerous specially for patients with hypovolemia problems from hemorrhage or who had cardiac diseases⁽⁶⁾. For treatment of postpartum hemorrhage, two new interventions are also proposed, the anti-shock garment and the balloon tamponade⁽⁹⁾. Embolization should be offered only after exploration of the uterine cavity, inspection of the vagina, cervix and perineum and failure of uterotonic drugs.¹³ In modern obstetrics, general trend to utilize non-aggressive treatment methods that is quite safe, cheap and few symptoms. According to the announcement of Ministry of Health and Medicine Education on giving priority to Islamic researches and Holy Koran advice of delivery manner of Mary (Peace be upon her) in verses 22-26 of Mary Surah and interpreter perception of these Verses, one of the best foods for women after delivery is dates⁽¹⁴⁾. It is better for prevent and treatment, was used from natural matters such as fruits because they are available, cheap, without adverse and acceptable for people. So we take a decision that use of dates for management of postpartum hemorrhage because:

- 1- Date fruit has Calcium, serotonin, tannin, linoleic acid and Prochidas an-zime that they are important for bleeding control.
- 2-Date fruit has much glucose that it is the most important source of

production of energy in body and also it is the best food for muscles of uterus. 3- Date fruit descends blood pressure in pregnant women for a little time so that it causes women have lesser bleeding in delivery. Also dates is laxative which it is caused to facilitate delivery ⁽¹⁴⁾. 4-There has been no practicable research in this regard. So we have conducted this research with the purpose of studying dates effect on hemorrhage rate after delivery and comparison of it with oxytocin which has been generally accepted all over the world.

Materials and Methods:

This study was a prospective and randomized clinical trial that was done in two Mashhad university hospitals, Imam Reza and Hazrat Zainab for 6 months on 62 women delivered in these hospitals.

We have compared 50 gram of Deglet Noor dates orally (group A) with 10 units intramuscular oxytocin (group B) for management of postpartum hemorrhage. It is a semi-dry date, possessing a delicate, flavor and firm-textured. Ranging in color from light red to amber to straw. Deglet Noor dates are long, slender and hold their shape very well.

The criteria for the subjects to be enter in the study were: age between 20-35, parity being less than 5, gestational age between 38-42 weeks with a living fetus with cephalic presentation, neonatal' weight between 2500-4000 gram, not being affected by systemic disease, not having any history of cesarian, myoma and any operation on uterus, hemorrhage after previous deliveries, non-existance of polyhydramnios, bleeding, preeclampsia, rupture of mem-

brane, non- existence of large episiotomy and finally normality of duration of the third stage of delivery (non- existence intense bleeding after delivery and if there is such state, the subject is going to be excluded from the research). the study According to sampling method, samples were initially selected based on study purpose and then were randomly classified in two groups. Even numbers were allocated to 31 people as the subject group and odd numbers to 31 people as the witness group. At the being of the forth stage of labor, immediately after placenta delivery, 50 gram of Deglet Noor dates orally was given to the subject group and 10 units oxytocin injection to the witness group. A pad and a plastic cover was applied to measure the bleeding. It was weighing the sheets and pads through Pascal Scales, type 100 gram and 1000 gram once in every hour until three hours after delivery. Each gram of overweight in comparison with before delivery was considered equal to 1 ml blood. Blood pressure and pulse were also measuring 15, 30,45,60,120 and 180 minutes after delivery.

In this research, the means of gathering data was interview and observation forms. Interview forms including personal information and data related to present and previous delivery were filled in. Then observation forms containing the data related to the first, second, third and forth stages of labor were completed. Non- parametric data were analyzed using the chi- square and parametric data were analyzed with the Student t test and mutual variances analysis, using SPSS (version 11).

Results:

The results indicated that most factors in the date group and oxytocin group were the same, including age, BMI, education, social class and occupation.

The following factors were also the same in the two groups: pregnancy and delivery factors such as abortion, interval between previous and present delivery, the rupture of membrane, induction of labor with oxytocin, duration and dose of oxytocin, interval between stopping oxytocin infusion to delivery, fetal sex, weight and apgar scales of the first and fifth minute, beginning of sucking nipples and the length of sucking. Table 1 shows some personal and delivery futures in the two groups.

According to the results of mutual variance analysis test, average bleeding in terms of the above-mentioned factors made no significant difference, except for Shoultz placental delivery mechanism in which there was more bleeding after delivery in the

dates and oxytocin groups (P=0.019) (Fig. 1).

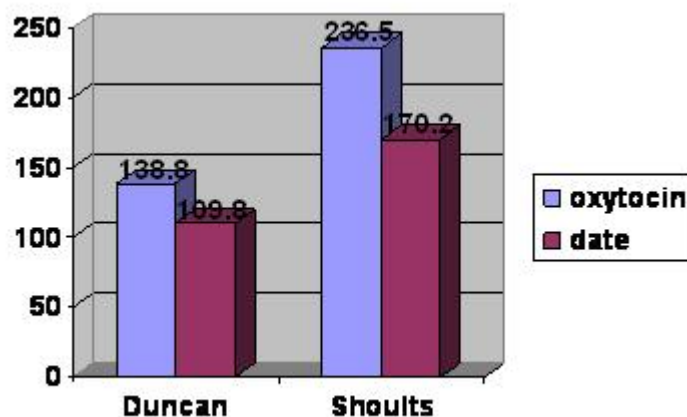


Fig. 1: Comparison of average bleeding in terms of placental delivery mechanism in the two group.

Table1: Demographic and delivery features of the two groups

Variable	Dates (n=31)	Oxytocin (n=31)	PV
Age (year)	24.4±3.96	25± 4.8	NS**
Body Mass Index (BMI)	26.2± 4.8	25.1± 2.8	NS
Pregnancy frequency	3.4± 2.2	3.1± 1.6	NS
Gestational age (week)	38.8± 2.7	38.4±1.4	NS
Delivery frequency	2.8± 2.6	2.9± 1.8	NS
Weight of fetus (gr)	3075±559	3100±568	NS
Weight of placenta(gr)	536±18.03	536±82.1	NS
Surface of placenta (cm)	20.1±2.0	20.1± 1.3	NS
Mechanism of Shoultz number (percent)	27(87)	26(83.8)	NS
Episiotomy number(percent)	17(54.8)	14(45.2)	NS
Tear of degree1,2 number(percent)	4(12.9)	8(25.8)	NS

*X±SD, **NS=Not significant , pv< 0.05 significant

Table2: Comparison of the length of labor stages in the two groups.

Length of Labor stages	Oxytocin (n=31)	Dates (n=31)	PV
	X± SD	X± SD	
Active phase of the first stage	180.3± 98.8	228.7±	NS
Second-stage	23.2±21.5	13.3	NS
Third-stage	8.9±3.2	31±30.6	NS
		8.9±4	

NS= Not significant , pv< 0.05 significant

Active phase of the first stage, the second-stage and the third-stage in the two groups were the same.

The average rate of bleeding in the first hour after delivery in the two groups studied had a significant difference so that bleeding rate in the first hour in the date group was less than the oxytocin group (104 ml V.S 141.6 ml, P=0.043). In the second and third hour after delivery, the bleeding rate made no significant difference (the second hour P=0.086, the third hour P=0.329), of course this rate in the dates group was lower in the second and third hour. Then, average of total bleeding during 3 hours after delivery in the two groups was significant difference (P=0.02) and it was lower in the dates group rather than the oxytocin group (162.5ml VS 220.7 ml). Fig. 2 and 3 indicates the bleeding

rate in the first, second, third hour and also in total 3 hours after delivery.

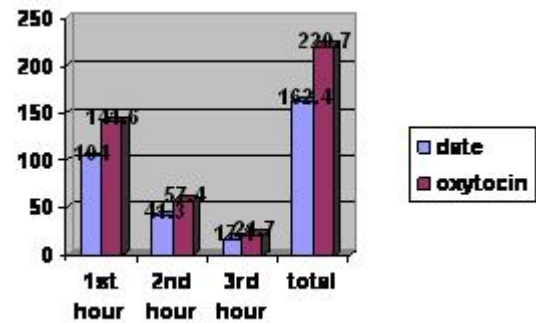


Fig. 2: Comparison bleeding average 3 hours after delivery in the two groups.

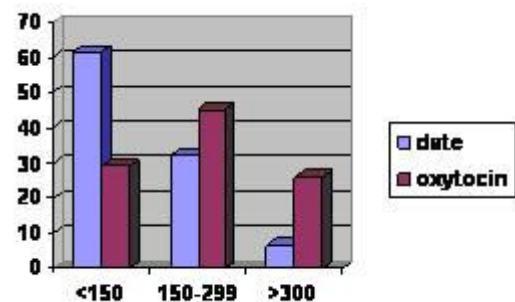


Fig. 3: Frequency distribution of research units in terms of bleeding in 3 hours after delivery in the two studied group

Discussion:

The present research indicates that eating dates after delivery in comparison with injection of oxytocin can reduce bleeding rate to a high extend and as it is shown in Fig. 2, the average rate of bleeding in the first hour and also average of total bleeding during the first 3 hours after delivery is lower in the dates group rather than in the oxytocin group. At the same time, oxytocin injection in the third stage of labor to de-

crease bleeding has generally been accepted^(10,12,15).

And according to similar studies, it has had the same effects as Misoprostol has^(16,17), and in some other studies, it has been preferred to Ergonovin⁽¹⁸⁾.

Akosua et al (1996) reported that using prophylactic oxytocin often prevents atony uterine and bleeding after delivery⁽⁹⁾. Nordstorm et al (1997) announced that use of oxytocin in the third-stage of labor more decrease bleeding rather than placebo⁽⁸⁾. The use of intramuscular ergometrine-oxytocin has been studied in a systematic review including six trials totaling more than 9,000 women⁽¹¹⁾. The combination uterotonic agent was found to be more effective than oxytocin alone for preventing postpartum hemorrhage (NNT = 61). No difference was seen for the prevention of severe postpartum hemorrhage, and there was significantly more nausea and vomiting (NNH = 61) and hypertension (NNH = 96) in the women receiving ergometrine-oxytocin⁽⁵⁾.

In a systematic review including 17 studies, there was an increased need for therapeutic uterotonic medications (NNH = 22) among the women receiving prophylactic misoprostol when compared with women receiving other injectable uterotonic agents. Side effects of misoprostol were common and included shivering (NNH = 7), vomiting (NNH = 225), diarrhea (NNH = 258), and elevated body temperature (NNH = 18). Although prostaglandins are an effective treatment of postpartum hemorrhage because of the balance of risks and benefits, they currently have no role in the prevention of postpartum hemorrhage⁽⁵⁾. No similar study in relation to date effects on bleeding after delivery has been carried

out.

Dates consumption has been emphasized during pregnancy and after delivery in many Islamic traditions. Dates strengthen uterine muscles and facilitating delivery as well as reduce postpartum hemorrhage⁽²⁰⁾. In connection with possible mechanism of date effect on bleeding, one can say that one important factor in preventing from bleeding is Serotonin that there is in date. Studies indicate that this substance is a stimulus of vessel and smooth muscle contraction⁽²¹⁾. Tannin and its compounds are also significant factors which involve 1% of the weight of fresh Deglet Noor dates^(22, 23). Tannin can be effect in controlling bleeding⁽²⁴⁾.

Among other factors existing in date, we can consider Linoleic acid, Oleic and Stearic^(25, 26). Linoleic acid can be changed into Arachidonate and then into Icho-sanoids. Icho-sanoids are 20-Carbon lipoids that fall into three categories: Prostaglandins, thromboxans and locoterins⁽²¹⁾. Prostaglandins play an important role in contraction of uterine muscles and bleeding control. Thromboxans cause platelet accumulation and vessel contraction. Leucoterins are substances which affect vessel contraction. Peroxidase enzymes existing in date is a significant factor in bleeding control⁽²¹⁾. Date has some basic and significant minerals like iron and calcium. In countries with limited resources, where a majority of women have anemia at the onset of their pregnancies, the slightest deviation from normality during labor and/or delivery leading to excessive hemorrhage can put a women's life at risk⁽¹⁾. Calcium is an element quite necessary for muscular contraction^(21, 24). There is usually 50 international units of Vitamin

A, 0.09 mg Vitamin B1, 0.1 mg Vitamin B2 and 0.22 mg Thiamin in each 100 gram of date ⁽²³⁾.

In conclusion, date fruit have various nutritious and therapeutic properties mentioned above, can reduce postpartum hemorrhage and can be regarded as a proper substitute for oxytocin.

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