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Comparison of the Renal Effects of Carbetoxin and Oxytocin in Hemorrhage Prophylaxis in Elective Cesarean Delivery

Elektif Sezaryen Doğumlarda Hemoraji Profilaksisinde Karbetoksin ve Oksitosinin Renal Etkilerinin Karşılaştırılması

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Abstract

Objective: The hemodynamic effects and the renal outcome of patients undergoing elective cesarian section with Oxytocin and carbetocin for postpartum haemorrhage prophylaxis are evaluated.

Methods: One hundred patients without risk factors for postpartum haemorrhage undergoing elective cesarean delivery, under spinal anaesthesia, were randomly allocated to receive either a single dose of carbetocin (100µg/3 mL) (n = 50) or Oxytocin intravenous injection (3 IU/3 mL) (n=50). The primary outcome was blood loss and hemodynamic effects. The secondary parameter evaluated was the renal effects of drugs.

Results: Regarding the hemodynamic effects, intraoperative (243±116.91 ml vs 311.30±130.23 ml, p=0.002) and second-hour postoperative blood loss (24.72 ± 9.43 ml vs 35.54 ± 19.4 ml, p=0.003) were significantly lower in the carbetocin group. At two hours postoperatively, urine osmolality (322.66±211.67 vs 401.45±218.08, p=0.028) was significantly higher in the oxytocin group. Conversely, postoperative urine sodium was higher in the carbetocin group at the twenty four hours in the carbetocin group (51.90±36.74 vs 42.42±41.63, p = 0.004).

Conclusion: Carbetocin is easy to use with lower blood loss and less requirement of additional uterotonics compared to Oxytocin. Both drugs cause minimal changes in renal parameters at physiological limits. The renal effects might be far more different with higher doses of both drugs that necessitate further research.

Keywords: Carbetocin, Oxytocin, cesarean section, postpartum haemorrhage, renal parameters

Öz

Amaç: Doğum sonu kanama profilaksisi için Oksitosin ve karbetosin ile elektif sezaryen uygulanan hastaların hemodinamik etkileri ve böbrek sonuçları değerlendirilmektedir.

Metot: Spinal anestezi altında elektif sezaryenle doğum yapan doğum sonu kanama için risk faktörü olmayan yüz gebe, tek doz karbetosin (100µg/3 mL) (n=50) veya intravenöz Oksitosin enjeksiyonu (3 IU/ 3 mL) (n=50). Birincil sonuç, kan kaybı ve hemodinamik etkilerdi. Değerlendirilen ikincil parametre ilaçların renal etkileriydi.

Bulgular: Hemodinamik etkiler açısından, intraoperatif (243±116,91 ml - 311,30±130,23 ml, p=0,002) ve ameliyat sonrası ikinci saat kan kaybı (24,72 ± 9,43 ml - 35,54 ± 19,4 ml, p=0,003) karbetoksin grubunda kadınlarda anlamlı olarak daha düşüktü. Ameliyattan iki saat sonra, oksitosin grubunda idrar ozmolalitesi (322.66±211.67'ye karşılık 401.45±218.08, p=0.028) anlamlı olarak daha yüksekti. Tersine, ameliyat sonrası idrar sodyumu karbetosin grubunda yirmi dört saatte karbetosin grubunda daha yüksekti (51.90±36.74'e karşı 42.42±41.63, p = 0.004).

Sonuç: Karbetosin Oksitosine göre daha düşük kan kaybı ve daha az ek uterotonik gereksinimi ile kullanımı kolaydır. Her iki ilaç da fizyolojik sınırlarda renal parametrelerde minimal değişikliklere neden olur. Böbrek etkileri, daha fazla araştırma gerektiren her iki ilacın daha yüksek dozları ile çok daha farklı olabilir.

Anahtar Kelimeler: Karbetosin, Oksitosin, sezaryen, doğum sonrası kanama, böbrek parametreleri

Introduction

Postpartum haemorrhage (P.P.H.) remains the primary cause of maternal mortality and morbidity in developing countries. It is responsible for 25% of maternal deaths globally, and an estimated 140,000 deaths occur annually due to haemorrhage [1,2]. The primary P.P.H. is defined as blood loss more than 500 mL after vaginal delivery and more than 1000 mL after cesarean section [2]. The risk factors for P.P.H. are prolonged or augmented labor, severe anaemia, eclampsia, antepartum bleeding, intrapartum blood loss, previous history, polyhydramnios, and inadequate management of the third stage of the labor [3,4]. Active management of the third stage with the administration of pharmacologic uterotonic agents has been proven efficient in preventing uterine atony, which is the leading cause of P.P.H. [5].

Oxytocin is the first choice uterotonic agent for the prevention and treatment of postpartum atony [6]. After binding the myometrium cell through inositol triphosphate and diacylglycerol modulated pathway, Oxytocin causes phasic contractions. Diacylglycerol causes prostaglandins synthesis, promoting uterine contractions and increasing uterine tonus, thereby reducing blood loss [7]. Nevertheless, due to its short half-life, Oxytocin is administered intramuscularly (I.M.) at a dose of 10 I.U. or as an intravenous (IV) infusion in the third stage of labor for the prevention of P.P.H. [8]. Intravenous infusion of Oxytocin has some dose-dependent hemodynamic consequences [9-12].

Carbetocin is a long-acting synthetic oxytocin analogue with similar pharmacological features. Carbetocin affects oxytocin receptors on the smooth musculature of the uterus, and it appears to be a promising alternative to Oxytocin for P.P.H. [13]. Notwithstanding, the half-life is 40 minutes (around 4-10 times longer than Oxytocin) and produces tetanic uterine contractions within two minutes, lasting six minutes, followed by rhythmic contractions a further hour [14]. Following the infant's extraction, a single dose implementation is adequate to maintain sufficient uterine contraction, thus preventing uterine atony [15]. Clinical trials revealed that carbetocin lowers the risk of P.P.H., significantly decreases the need for additional uterotonic agents, and achieves better uterine contractility in both cesarean and vaginal deliveries [16].

Hence, in this study, we aimed to evaluate the efficacy of carbetocin in terms of blood loss, additional uterotonic need, and adverse effects. In addition, as a secondary outcome, the renal parameters (diuresis, urine sodium levels, and urine osmolality) for carbetocin and oxytocin use in C-section for P.P.H. prophylaxis were also evaluated. Oxytocin is known to have antidiuretic properties through increasing osmotic water transport in microdissected renal inner medullary collecting ducts, mediated by Arginine Vasopressin (AVP) receptors [17-19]. From a clinical perspective, water retention and hyponatremia have been reported with the induction of labor with oxytocin [20]. Like Oxytocin, carbetocin can bind to the renal vasopressin V_2 receptor [21]. Nevertheless, the possible antidiuretic properties of carbetocin have not been documented in clinical studies. In this study, all the outcomes, including renal parameters of carbetocin, were compared with Oxytocin for P.P.H. prevention.

Methods

The study was conducted in a university hospital setting between May 2019 and February 2020. 122 patients were enrolled, and informed consent was obtained from all participants. Post hoc power analysis was applied with the G * Power 3.1.9.2 program at the end of the study. The study's power was applied considering the blood loss, the 2nd-hour value, and the power of the study was determined as 96 per cent at the 0.05 significance level.

Ethical approval was granted by the Ethics Committee of Education and Research Hospital (reference number: 1499/2017) and registered at clinicaltrials.gov (NCT03939806).

The study population consisted of elective C-section cases undergoing surgery after 37 weeks of gestation for malpresentation or previous C-section. The exclusion criteria were multiple pregnancies, preterm birth (<37 weeks), patients with chronic diseases (hypertension, heart disease, renal pathologies, liver disease), pregnancies complicated with preeclampsia or gestational diabetes mellitus, cases with a single kidney, and cases with contraindications for carbetocin or oxytocin use. In addition, cases with a high risk for P.P.H. [grand-multipar (>5 previous deliveries), accompanying myomas, severe anaemia, polyhydramnios, macrosomic fetus (4500 g), low molecular heparin use] were also excluded. After randomization, 59 participants received carbetocin (Group I), and 61 received oxytocin (Group II). The sealed envelope system performed randomization. The surgeon who performed all operations was blinded to the protocol.

All patients' demographic data (age, B.M.I., gravidity, parity) medical and obstetric histories were recorded. Routine preoperative laboratory parameters (including haemoglobin levels, sodium, BUN, and glucose levels) were obtained. Body mass index (B.M.I.) was calculated as kg/m^2. Serum osmolality is calculated using the formula = (2x Na) +(BUN/2.8) + Glucose /18).

Anaesthesia and intraoperative drug application

Hemodynamic data [systolic (S.B.P.), diastolic (DBP), and mean blood pressure (M.B.P.), heart rate (H.R.)] were recorded before starting surgery (**T0**). The intraoperative fluid replacement was started at T0 with Ringer Lactate given at 10 mL/kg during the first 20 minutes after that; maintenance fluid was given throughout the surgery in both groups. All cases had spinal anaesthesia with a standard protocol. Hyperbaric bupivacaine 5 mg/mL (Marcain Spinal Heavy %0,5, AstraZeneca, Sweden) of 10 mg/2mL were given at L2-L3 intervertebral space 25-gauge spinal needle (Spinocan, Braun, Melsungen, Germany). All the patients had a Foley catheter and urine bag before the start of surgery. After completion of spinal anaesthesia, hemodynamic data was recorded every 2 minutes. In case of hypotension (S.B.P. <90 mmHg, M.B.P. <60 mmHg or decrease in S.B.P.>%20), 10 mg ephedrine was given intravenously, and in case of bradycardia, intravenous 1mg atropine was given.

At the start of surgery (**T1**) and before umbilical cord clamping (**T2**), diuresis and S.B.P., DBP, and H.R. were recorded. After clamping the umbilical cord, Group I received Carbetocin (Pabal®, Ferring Pharmaceuticals, Germany), a single dose of 100µg/3 mL bolus applied at 60 seconds, and Group II received 3 IU/3 mL oxytocin (Synpitan® Forte; Deva Holding AS, Turkey) bolus applied at 60 seconds. The obstetrician assessed the uterine tone 60 seconds after the first dose of the uterotonic drug application (**T3**). With the aid of using a numeric rating scale that ranged from 0 to 10. The score of 0 intended 'no effect,' 10 elucidate 'maximal uterus contraction,' and 7 meant 'clinically convincing contraction.' As previously described [22]. If uterine tonus scoring was <7, 3 minutes after uterotonic drug application (**T4**), then the second dose of Oxytocin was given at the same amount. If required, this dose has been repeated a maximum of three times.

Afterwards, patients in Group II received 100mL/h intravenous infusion of Oxytocin 3IU/3mL in 1000 mL Ringer Lactate. During surgery, hemodynamic values and uterine tonus were recorded every three minutes (**T5, T6, T7**). Rescue uterotonics (intramuscular ergonovine and rectal misoprostol) were used when required (uterine tonus <7) in both groups.

At the end of surgery, diuresis, the amount of intravenous fluid intake, and surgery duration were also recorded. Any adverse effects of uterotonic drugs (hypotension, nausea, vomiting, tachycardia, arrhythmia, palpitation, headache, flushing, nasal congestion, dyspnea, chest pain, xerostomia) were noted.

Postoperative follow-up

Postoperatively, uterine tonus and fluid intake were checked at 2h, 12h, and 24h. The amount of urine, urine sodium levels, and urine osmolality were recorded at postoperative 2h, 12h, and 24h, and the urine catheter was removed at the postoperative 24 h. Urine osmolality is calculated using =2 x (urine Na) + Urine K + (urinary urea nitrogen/2.8) + (urine glucose/18). The need for extra uterotonic and haemoglobin levels were recorded. The blood loss was calculated by comparing the haemoglobin values on admission with the measure at 2 h, 12h, and 24 h after the operation. Estimated blood loss was calculated with the following formula: 0.75x [(maternal height in cm x19.5) + (maternal weight in kg x 55)] x (preoperative HCT- postoperative HCT) / preoperative HCT (21). S.B.P. and DBP and plasma sodium, BUN, Glucose, and blood osmolality were also checked at 2h, 12h, and 24h.

Statistical analysis

Collected data were analyzed by SPSS 22.0 (SPSS Inc., Chicago, IL) package program. P-value <0.05 was considered statistically significant. Categorical variables were expressed as the number of observations (per cent), while continuous variables were shown as mean ± standard deviation. A Chi-square test was used to compare categorical variables. The suitability of the data to normal distribution was tested with the Shapiro Wilk test. In the comparison of the mean of continuous variables, the T-Test was used in case of conformity to the normal distribution, and Mann Whitney-U Test was used for variables that did not conform to the normal distribution. Repeated Measures ANOVA was utilized to compare the averages of continuous variables over time, and the Friedman Test was used for variables that did not find suitable for the normal distribution.

Results

At the start of the study, 122 women were enrolled, but 2 patients were not meeting the criteria and were excluded. Subsequently, 59 patients in the carbetocin group and 61 patients in the oxytocin group were allocated. During the study, 16 patients were excluded (7 in the carbetocin and 9 in the oxytocin group) as the spinal anaesthesia was altered to general anaesthesia. Besides, 4 patients were excluded (2 cases in each Group) drug application was not applied according to the study design (Figure 1). Following that, the data of 100 patients were eligible for analysis (Carbetocin group n=50, Oxytocin group n=50). There were no statistically significant differences between groups regarding the demographic data (age, gravidity, parity, B.M.I., previous surgeries, preoperative haemoglobin, hematocrit), as summarized in Table 1.

Figure 1. Recruitment flow chart for a randomized trial of intravenous bolus carbetocin compared to oxytocin in cesarean section

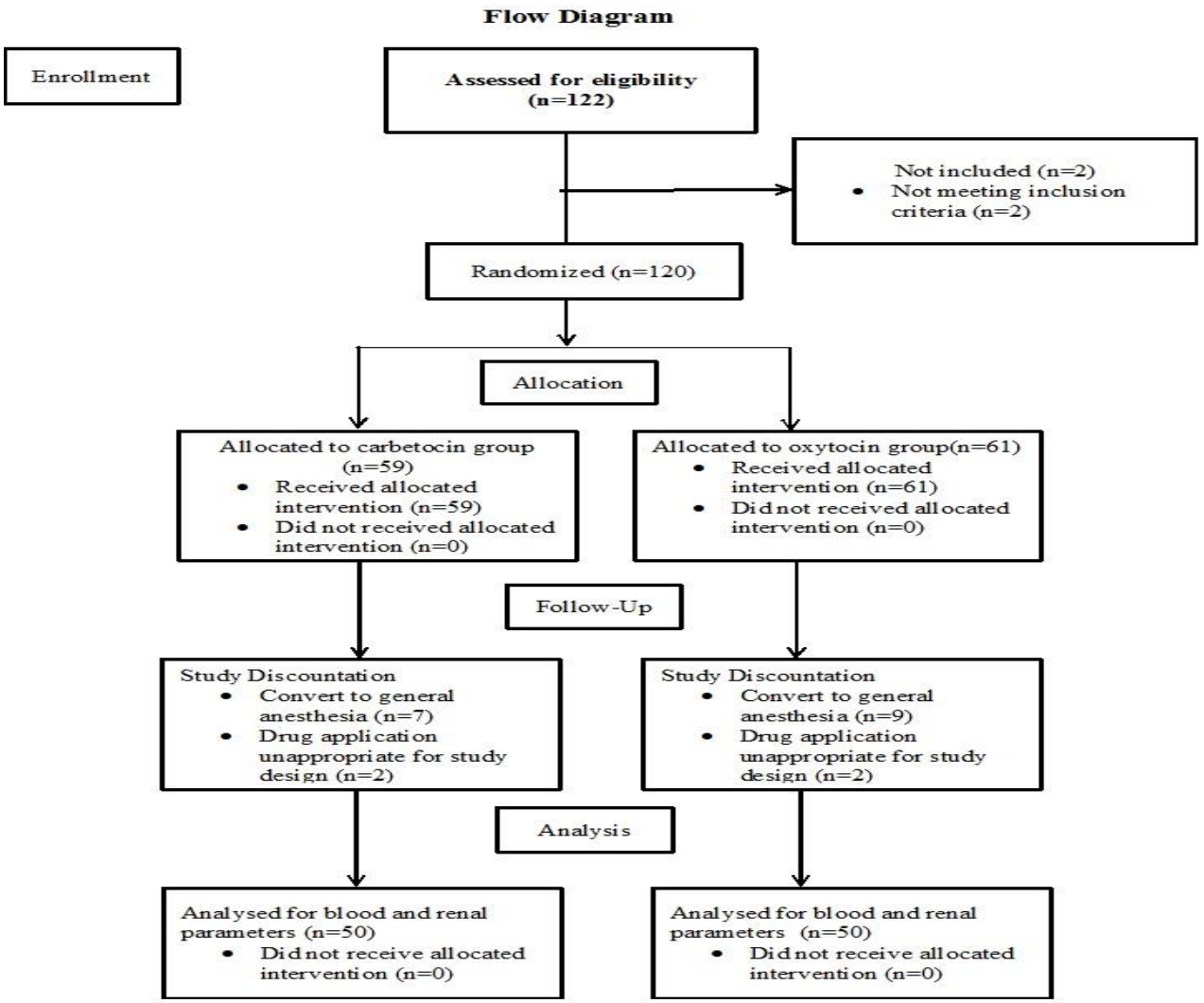


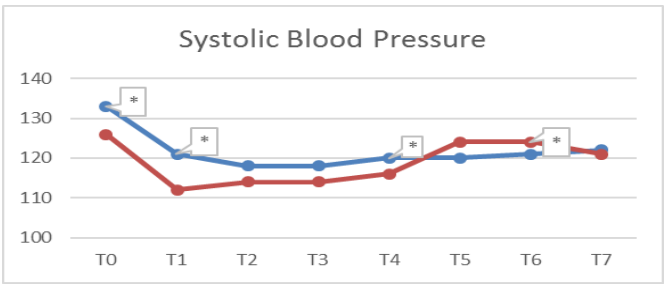
Table 1. Demographical and preoperative data of the groups

	Carbetocin (n=50)	**Oxytocin (n=50)**	***P***
Maternal age (years) Mean ± sd	31.00±5.42	30.92±5.83	NS
Gravidity Mean ± sd	2.16±0.90	2.30±1.05	NS
Parity Mean ± sd	0.91±0.75	1.14±1.06	NS
BMI (kg/m2) Mean ± sd	29.36±4.66	31.45±3.32	NS
Previous Surgeries n(%)	30(%60)	32(%64)	NS
Hematocrit (%) Mean ± sd	35.47±2.38	36.43±2.98	NS
Hemoglobin (g/dL) Mean ± sd	12.23±0.86	12.11±1.25	NS

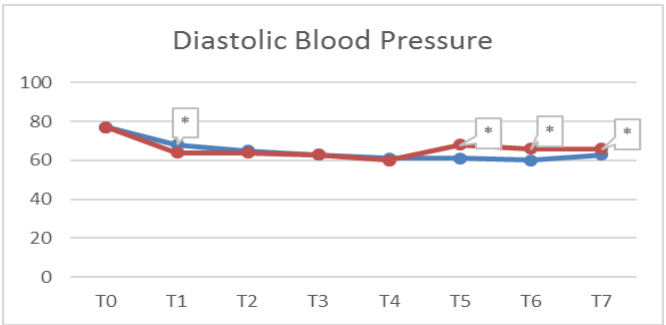
NS: Not significant,p>0.05
BMI: Body Mass Index

The intraoperative vital signs of the groups are given in Figure 2. Intraoperative (Group I: 243±116.91 ml and Group II: 311.30±130.23ml, p=0.002) and 2nd hour postoperative blood loss (Group I: 24.72 ± 9.43 ml vs Group II: 35.54 ± 19.4 ml) were significantly lower in the carbetocin group compared to the oxytocin group (p<0.05). Concerning the intraoperative side effects, vomiting was more frequent in the oxytocin group (40% vs 6%), whereas palpitation (13% vs 10%) and xerostomia (60% vs 22%) were more frequent in the carbetocin group (p<0,05).

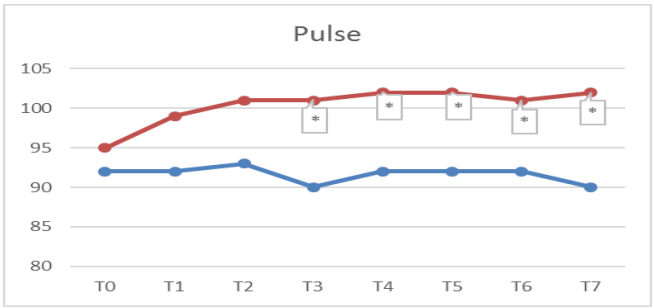
Figure 2. Intraoperatif systolic/diastolic blood pressure and pulse values



1a.



1b.



1c.

Carbetocin group Oxytocin group

*p<0.05: significantly higher in the marked group at the indicated time in surgery

None of the cases required additional uterotonics at the intraoperative and postoperative periods in the carbetocin group. However, in the oxytocin group, 30% (n=15) of the patients needed additional uterotonics intraoperatively, and the difference between the two groups was statistically significant (p = 0.001). In the oxytocin group, at postoperative 2nd hour, 20% (n=10), at 12nd hour 12% (n=6), and at 24nd hour, 4% (n=2) of the cases were given additional uterotonics due to lower uterine tonus (p=0.001). In the postoperative period, additional uterotonic needs, the difference between the two groups was statistically significant at 2h (p = 0.001) and 12h (p = 0.012) [Table 2].

Table 2. Subject characteristics of the entire study group

	Carbetocin n=50	Oxytocin n=50	*p*
Additional uterotonic	n(%)	n(%)	
Intraoperative	0 (0)	15 (30,0)	0.001*
2nd hour	0 (0)	10 (20)	0.001*
12th hour	0 (0)	6 (12)	0.001*
24th hour	0 (0)	2 (4)	0.001*
Blood loss, ml	Mean ± SD	Mean ± SD	
Intraoperative	243.40 ± 116.91	311 ± 130.23	0.002*
2nd hour	24.72 ± 9.43	35.54 ± 19.4	0.003*
12th hour	48.08 ± 20.11	49.14 ± 17.6	0.394
24th hour	44.32 ± 34.25	42.40± 18.40	0.375
Diuresis, ml	Mean ± SD	Mean ± SD	
Intraoperative	151.70 ± 136,63	148.92 ± 105.05	0.411
2nd hour	375.30 ± 264.88	400.8 ± 209.26	0.331
12th hour	1911.40 ± 521.85	1780.80 ± 627.17	0.229
24th hour	3458.0 ± 787.96	3502.6 ± 901.32	0.836
Urinary Na, mmol/L	Mean ± SD	Mean ± SD	
2nd hour	94.14±50.41	79.24±68.24	0.024*
12th hour	59.98±41.87	60.12±33.58	0.402
24th hour	51.90±36.74	42.42±41.63	0.004*
Urinary osmolality, mOsm/kg	Mean ± SD	Mean ± SD	
2nd hour	322.66±211.67	401.45±218.08	0.028*
12th hour	177.19±98.93	222.56±117.62	0.021*
24th hour	174.61±92.99	197.62±154.01	0.953
Fluid administered, ml	Mean ± SD		
Intraoperative	1330.0 ± 465.44	Mean ± SD	
2nd hour	886 ± 413.18	1387.0 ± 690.56	0.672
12th hour	2570.0±809.76	790 ± 347.44	0.170
24th hour	4487 ± 960.27	2197.0 ± 859.43	0.026*
		4532.00 ± 817.02	0.471
Systolic arterial pressure, mmHg	Mean ± SD		
Intraoperative	124.13 ± 17.78	Mean ± SD	
2nd hour	111.85 ± 13.18	114.53 ±15.77	0.031*
12th hour	106.90 ± 6.14	115.0 ± 10.74	0.527
24th hour	108.20 ± 7.20	111.80 ± 8.5	0.003*
		108.60 ± 6.70	0.278
Blood Osmolality, mOsm/L	Mean ± SD	Mean ± SD	
Preoperative	281.2 ± 3.8	279.5 ± 3.7	0.078
2nd hour	281.30 ±3.49	278.79 ± 4.65	0.002*
12th hour	280.11±4.52	270.95 ± 38.29	0.014*
24th hour	280.78±3.76	276.51 ± 13.90	0.002*
Blood Na, mEq/L	Mean ± SD	Mean ± SD	
Preoperative	136.47 ± 3.16	135.61 ± 2.11	0.082
2nd hour	137 ± 1.58	135.35 ± 4.38	0.003*
12th hour	136.50±2.08	134.88± 4.54	0.014*
24th hour	136.96±1.83	135.22 ± 4.26	0.002*

Na: Sodium
NS: Not significant,p>0.05

Regarding the urine parameters, urine output was similar at all times preoperatively and (2h,12h,24h) postoperatively [Table 2]. At 2h postoperatively, urine osmolality was significantly higher, whereas urinary sodium was lower in the oxytocin group compared to the carbetocin group [Table 2]. Additionally, it was observed that urine osmolality was found to be higher at the oxytocin group and the 12th hour ($p = 0.021$), and postoperative urine sodium was higher in the carbetocin group at 24h ($p = 0.004$) and [Table 2]. When the groups are compared regarding the blood osmolality values, the results were significantly higher in the carbetocin group than in the oxytocin group at postoperative 2h ($p = 0.002$), 12h ($p = 0.014$), and 24h ($p = 0.002$) [Table 2].

Discussion

Findings and interpretation

The data obtained from this study support the previous information that carbetocin is as effective as Oxytocin in terms of blood loss when used for P.P.H. prophylaxis. In the same line, in the meta-analysis assessing carbetocin's effectiveness for preventing bleeding, no statistical difference was found between carbetocin and Oxytocin in terms of P.P.H. incidence (11 studies, 2635 patients) [23]. In this metanalysis, three of the four studies were on women with risk factors for P.P.H., and the need for therapeutic uterotonics was significantly lower (RR 0.62; 95% CI 0.44 - 0.88) in the carbetocin group than oxytocin group, in C-section cases (1173 women) [23]. Likewise, our study shows that carbetocin can be used as a single agent for P.P.H. prophylaxis in women without risk factors for P.P.H. with no additional need for other uterotonics. Moreover, accumulating evidence in the literature indicates less blood loss after carbetocin administration. In a recent meta-analysis with seven studies involving 2012 patients, a significant reduction in P.P.H. rates was reported with carbetocin (RR 0.79; 95% CI 0.66 to 0.94; p= 0.009) [24]. In accordance with this, in our study and the previous paper in women with at least one risk factor for P.P.H. undergoing C-section by Borruto et al. [25], carbetocin was associated with less blood loss compared with Oxytocin. However, in our study and the study of Borruto et al., the amount of blood loss was too few to change the clinical scenario and management of the cases (70 ml in ours and 30 ml in Borruto et al.).

AVP is a neuropeptide like Oxytocin, central to water homeostasis by regulating urine concentration at the kidney level. AVP has different receptors, and our primary concern is the V_2 receptor of AVP that is found primarily in the kidneys [26]. After binding to the V_2 receptor, Oxytocin has an impact on renal aquaporin (A.Q.P.) water channels in the cells of the collecting duct and increases sodium excretion in urine [27].

Regarding renal parameters from this study, at postoperative 2 hours, the statistically significant difference between oxytocin and carbetocin groups regarding the serum sodium and serum osmolalities between the two groups is clinically negligible. Furthermore, the urine sodium levels in both groups are over the normal limits at all times (2h, 12h, and 24h). We may speculate that the increased excretion of sodium postoperatively can be explained by intravenous fluid supplementation during and after surgery. Moreover, the ADH-like effect of both molecules can have an additive effect on this result. Notwithstanding, the higher urine osmolality in the oxytocin group compared to carbetocin at 2 hours postoperatively might explain the increased blood loss in this Group. Another remarkable finding from this study is urinary osmolality at postoperative 2 hours in both groups. The fall in the urine osmolality at 12 and 24 hours can be due to the end of the drug effect on the kidneys. Consecutively, the reestablishment of the fluid balance was observed as low urine osmolality.

Similarities and differences in relation to other studies

To our knowledge, this is the first study examining the renal effects of carbetocin and Oxytocin in such a comprehensive manner. All parameters were monitored, and their results

were compared extensively.

Study limitations

The limited number of participants in this study weakens the generalizability of the results. Another limitation is that measurements related to different blood electrolyte balance systems, other than the renal system, are not included in the study. Besides, the patients' long-term follow-up was not performed, and the follow-up was terminated at the 24th hour after the operation.

Clinical implications

Both drugs cause minimal changes in renal parameters at physiological limits at the dosages mentioned here. However, comparing carbetocin to Oxytocin stands out as an easy-to-use agent that causes less blood loss and less additional uterotonics.

Future research

Further studies are needed as renal effects may be different at higher doses.

Conclusion

In conclusion, the data obtained from this study show that Oxytocin and carbetocin are safe and effective agents in preventing P.P.H.

References

1. American College of Obstetricians and Gynecologists. Clinical management guidelines for obstetrician-gynecologists: postpartum hemorrhage. ACOG Practice bulletin no. 76. Obstet Gynecol 2006;108:1039-47.

2. World Health Organization. WHO recommendations for the prevention and treatment of postpartum haemorrhage. Geneva:World Health Organization. 2012. WHO Guidelines Approved by the Guidelines Review Committee. Available at: http://www.who.int/reproductivehealth/publi cations/maternal_perinatal_health/97892415 48502/en/. Accessed Nov. 1, 2013.

3. Jansen A.J., van Rhenen DJ, Steegers E.A.P., et al. Postpartum hemorrhage and transfusion of blood and blood components. Obstetrical & gynecological survey, 2005. 60(10): p. 663-671.

4. Combs CA, Murphy EL, Laros Jr R.K. Factors associated with postpartum hemorrhage with vaginal birth. Obstetrics and gynecology, 1991. 77(1): p. 69-76.

5. Begley CM, Guilliland K, Dixon L, et al. Irish and New Zealand midwives' expertise in expectant management of the third stage of labour: the 'MEET' study. Midwifery. 2012 Dec;28(6):733-9.

6. Tunçalp O, Souza JP, Gülmezoglu M, et al. New WHO recommendations on prevention and treatment of postpartum hemorrhage. Int J Gynaecol Obstet 2013;123:254e6.

7. Anderson JM, Etches D. Prevention and management of postpartum hemorrhage. Am Fam Physician 2007;75:875e82.

8. Brindley BA, Sokol RJ. Induction and augmentation of labor: basis and methods for current practice. Obstet Gynecol Surv 1988;43:730e43.

9. Leduc D, Senikas V, Lalonde AB, et al. Active management of the third stage of labour: prevention and treatment of postpartum hemorrhage. J Obstet Gynaecol Can 2009;31:980e93.

10. Pinder AJ, Dresner M, Calow C, et al. Haemodynamic changes caused by Oxytocin during caesarean delivery under spinal anaesthesia. Int J Obstet Anesth 2002;11:156–9.

11. Thomas JS, Koh SH, Cooper GM. Haemodynamic effects of Oxytocin given as i.v. bolus or infusion on women undergoing Caesarean delivery. Br J Anaesth 2007;98:116–9.

12. Svanstro¨m MC, Biber B, Hanes M, et al. Signs of myocardial ischaemia after injection of Oxytocin: a randomized double-blind comparison of Oxytocin and methylergometrineduring Caesarean section. Br J Anaesth 2008;100:683–9.

13. Chong YS, Su LL, Arulkumaran S. Current strategies for the prevention of postpartum haemorrhage in the third stage of labour. Current Opinion in Obstetrics and Gynaecology 2003; 16(2):143–50.

14. Sweeney G, Holbrook AM, Levine M, et al. Pharmacokinetics of carbetocin, a long acting oxytocin analogue, in nonpregnant women. Curr TherRes 1990; 47:528-540,

15. Hunter DJ, Schulz P, Wassenaar W. Effect of carbetocin, a long-acting oxytocin analog on the postpartum uterus. Clinical Pharmacology and Therapeutics 1992;52:60–7.

16. El Behery MM, El Sayed GA, El Hameed A.A., et al. Carbetocin versus Oxytocin for prevention of postpartum hemorrhage in obese nulliparous women undergoing emergency cesarean delivery. J Matern Fetal Neonatal Med 2016;29:1257e60

17. Chou CL, DiGiovanni SR, Luther A, et al. Oxytocin as an antidiuretic hormone: II, role of V2 vasopressin receptor. Am J Physiol 269: F78–F85, 1995.

18. Pouzet B, Serradeil-Le GC, Bouby N, et al. Selective blockade of vasopressin V2 receptors reveals significant V2-mediated water reabsorption in Brattleboro rats with diabetes insipidus. Nephrol Dial Transplant 16: 725–734, 2001.

19. Lyness J, Robinson AG, Sheridan MN, et al. Antidiuretic effects of Oxytocin in the Brattleboro rat. Experientia 41: 1444–1446, 1985

20. Potter, R.R., Water retention due to Oxytocin. Obstetrics & Gynecology, 1964. 23(5): p. 699-702.

21. Engstrom T, Barth T, Melin P, et al. Oxytocin receptor binding and uterotonic activity of carbetocin and its metabolites following enzymatic degradation. Eur J Pharmacol. 1998 Aug 21;355(2-3):203-10.

22. A J Butwick, L Coleman, S E Cohen, E T Riley, B Carvalho. Minimum effective bolus dose of Oxytocin during elective Caesarean delivery. Br J Anaesth

. 2010 Mar;104(3):338-43. doi: 10.1093/bja/aeq004.

23. Su LL, Chong YS, Samuel M. Carbetocin for preventing postpartum haemorrhage. Cochrane Database Syst Rev. 2012 Feb 15;(2):CD005457.

24. Voon HY, Suharjono HN, Shafie AA, et al. Carbetocin versus Oxytocin for the prevention of postpartum hemorrhage: A meta-analysis of randomized controlled trials in cesarean deliveries. Taiwan J Obstet Gynecol. 2018 Jun;57(3):332-339.

25. Borruto F, Treisser A, Comparetto C. Utilization of carbetocin for prevention of postpartum hemorrhage after cesarean section: a randomized clinical trial. Arch Gynecol Obstet. 2009 Nov;280(5):707-12.

26. Baribeau DA, Anagnostou E. Oxytocin and vasopressin: linking pituitary neuropeptides and their receptors to social neurocircuitsFront Neurosci. 2015; 9: 335.

27. Knepper MA. Molecular physiology of urinary concentrating mechanism: regulation of aquaporin water channels by vasopressin. Am J Physiol. 1997 Jan;272(1 Pt 2):F3-12.

Yayın

Comparison of the Renal Effects of C

Gelişmiş Arama

Aramayı Kaydet

Bulunan Toplam Sonuç : 1

Yıl A

Tümünü Analiz Listesine Ekle

1 . Comparison of the Renal Effects of Carbetoxin and Oxytocin in Hemorrhage Prophylaxis in Elective Cesarean Delivery

MAKALE

Özgür ŞAHİN, Hakan YILMAZ, Tufan ARSLANCA, Baturay KAZBEK, Perihan EKMEKÇİ, Gamze Sinem ÇAĞLAR

Ege Klinikleri Tıp Dergisi

Yıl: **2023** Cilt: **61** Sayı: **1** Sayfa: **8 - 14**

Analiz Listesinden Çıkar

Öz

Toplam Kayıt: 1

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