



A comparison of efficacy of carbetocin with oxytocin on hemorrhage-related changes in women with cesarean deliveries for different indications: a retrospective cohort study

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Objective

To compare the efficacy of carbetocin and oxytocin on hemorrhage-related changes in women with cesarean deliveries (CS) for different indications.

Methods

A retrospective cohort study was conducted on 1568 women with CS before labor onset (elective CS, n=1153) or during labor (intrapartum CS, n=415) after 24 weeks' gestation. We compared the fall in hemoglobin (Hb) and hematocrit (Hct) levels after CS, the need for additional uterotonic agents, blood transfusion, estimated blood loss, and the rate of postpartum hemorrhage between women with carbetocin and women with oxytocin treatment, stratified by indications for CS.

RESULTS

For women with elective CS, decreased Hb and Hct falls were noted with carbetocin treatment compared to oxytocin treatment in women with indications for prior CS, fetal malpresentation, multiple gestation, and placenta previa. The need for additional uterotonic agents was less likely in CS for prior CS, fetal malpresentation, and cephalopelvic disproportion and less blood loss was noted in CS for multiple gestation in women with carbetocin compared to women with oxytocin treatment. For women with intrapartum CS, carbetocin was associated with decreased Hb and Hct falls in CS for abnormal fetal heart rate patterns and decreased use of additional uterotonic agents and transfusion in CS for dysfunctional labor.

CONCLUSIONS

Carbetocin and oxytocin had differential effects on hemorrhage-related changes in women with CS for different indications.

Tables

Table 1. Comparisons between the effects of oxytocin and carbetocin in women with elective cesarean deliveries

	Prior cesarean delivery			Fetal malpresentation			Multiple gestation			Cephalopelvic disproportion			Placenta previa		
	Oxytocin (n=391)	Carbetocin (n=247)	P	Oxytocin (n=175)	Carbetocin (n=83)	P	Oxytocin (n=51)	Carbetocin (n=42)	P	Oxytocin (n=55)	Carbetocin (n=36)	P	Oxytocin (n=32)	Carbetocin (n=53)	P
Hb difference (g/dL)	1.1 ± 0.9	0.8 ± 0.9	<0.01	1.2 ± 0.9	0.9 ± 0.9	0.02	1.4 ± 1.2	0.7 ± 1.3	<0.01	1.2 ± 1.0	1.2 ± 0.8	0.87	1.3 ± 1.2	0.6 ± 1.5	0.03
Hct difference (%)	3.4 ± 2.7	2.7 ± 2.6	<0.01	3.5 ± 2.6	2.7 ± 2.6	0.03	4.3 ± 3.4	2.2 ± 3.8	<0.01	3.5 ± 3.0	3.6 ± 2.4	0.92	4.0 ± 3.8	1.7 ± 4.2	0.02
Additional uterotonics	125 (32.0%)	41 (16.6%)	<0.01	63 (36.0%)	18 (21.7%)	0.02	19 (37.3%)	9 (21.4%)	0.10	18 (32.7%)	5 (13.9%)	0.04	15 (46.9%)	19 (35.8%)	0.32
Blood transfusion	48 (12.3%)	22 (8.9%)	0.19	17 (9.7%)	6 (7.2%)	0.51	23 (45.1%)	4 (9.5%)	<0.01	9 (16.4%)	2 (5.6%)	0.12	13 (40.6%)	16 (30.2%)	0.33
Blood loss (mL)	716 ± 513	709 ± 595	0.87	723 ± 439	640 ± 554	0.20	1008 ± 403	764 ± 466	<0.01	785 ± 301	801 ± 423	0.83	1073 ± 581	1042 ± 931	0.87
Postpartum hemorrhage	22 (5.9%)	13 (5.3%)	0.74	11 (6.3%)	4 (4.8%)	0.64	4 (7.8%)	3 (7.1%)	0.90	0	2 (5.6%)	0.08	7 (21.9%)	7 (13.2%)	0.30

Hb, hemoglobin; Hct, hematocrit.

P values based on Student's *t*-test or the χ^2 -test.

Table 2. Comparisons between the effects of oxytocin and carbetocin in women with intrapartum cesarean deliveries

	Dysfunctional labor			Abnormal FHR pattern			Acute chorioamnionitis		
	Oxytocin (n=171)	Carbetocin (n=104)	P	Oxytocin (n=87)	Carbetocin (n=53)	P	Oxytocin (n=26)	Carbetocin (n=8)	P
Hb difference (g/dL)	1.3 ± 1.1	1.1 ± 0.9	0.54	1.4 ± 1.0	1.1 ± 1.1	0.04	1.0 ± 1.1	1.8 ± 1.0	0.06
Hct difference (%)	3.8 ± 3.2	3.1 ± 2.5	0.07	4.2 ± 2.9	3.0 ± 3.4	0.02	3.1 ± 3.2	4.9 ± 2.4	0.14
Additional uterotonics	66 (38.6%)	15 (14.4%)	<0.01	15 (17.2%)	8 (15.1%)	0.74	7 (26.9%)	2 (25%)	0.91
Blood transfusion	15 (8.8%)	2 (1.9%)	0.02	11 (12.6%)	5 (9.4%)	0.56	6 (23.1%)	0	0.13
Blood loss (mL)	666 ± 304	623 ± 316	0.26	616 ± 320	657 ± 444	0.53	831 ± 502	456 ± 240	0.05
Postpartum hemorrhage	4 (2.3%)	2 (1.9%)	0.82	2 (2.3%)	3 (5.7%)	0.30	2 (7.7%)	0	0.42

Hb, hemoglobin; Hct, hematocrit; FHR, fetal heart rate.

P values based on Student's *t*-test or the χ^2 -test.