

EFFICACY AND SAFETY OF “CARBETOCIN” IN PREVENTION OF POSTARTUM HEMORRHAGE

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ABSTRACT

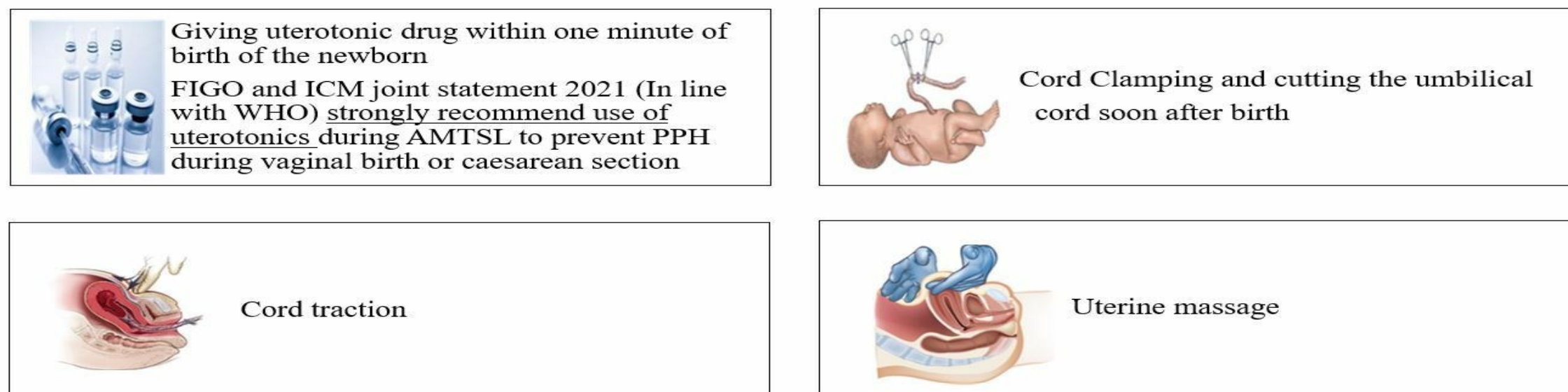
Post-partum hemorrhage is still a leading cause of maternal mortality in developing countries and significant contributor to maternal morbidity. Currently world health organization recommends the active management of third stage of labor to prevent atonic PPH. To assess the efficacy of carbetocin versus oxytocin in active management of third stage of labor in terms of blood loss and the need for use of additional uterotonics and to compare the hemodynamic effects and their associated side effect profile.

INTRODUCTION

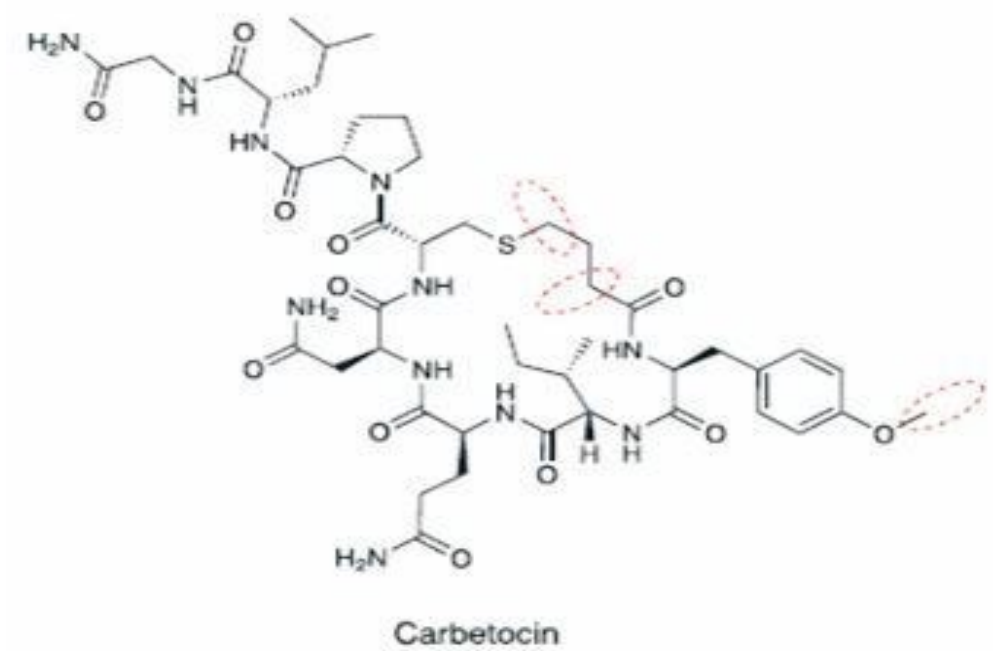
Postpartum hemorrhage is a life-threatening complications associated with both caesarean delivery as well as vaginal delivery. WHO defines PPH as a blood loss ≥ 500 ml after vaginal delivery and ≥ 1000 ml after abdominal delivery or any blood loss causes hemodynamic instability after delivery. New ACOG definition of PPH is cumulative blood loss of ≥ 1000 ml or blood loss with signs/symptoms of hypovolemia within 24 hours of the birth process.

Uterine atony is defined as "the failure of uterus to contract adequately after child birth." It causes 70–80% cases of postpartum hemorrhage. Remains the single most common cause, and its incidence appears to be increasing.

Active management of third stage of labor (AMTSL) is a prophylactic, deliberate, effective intervention to ensure smooth expulsion of the placenta and prevention of postpartum hemorrhage.

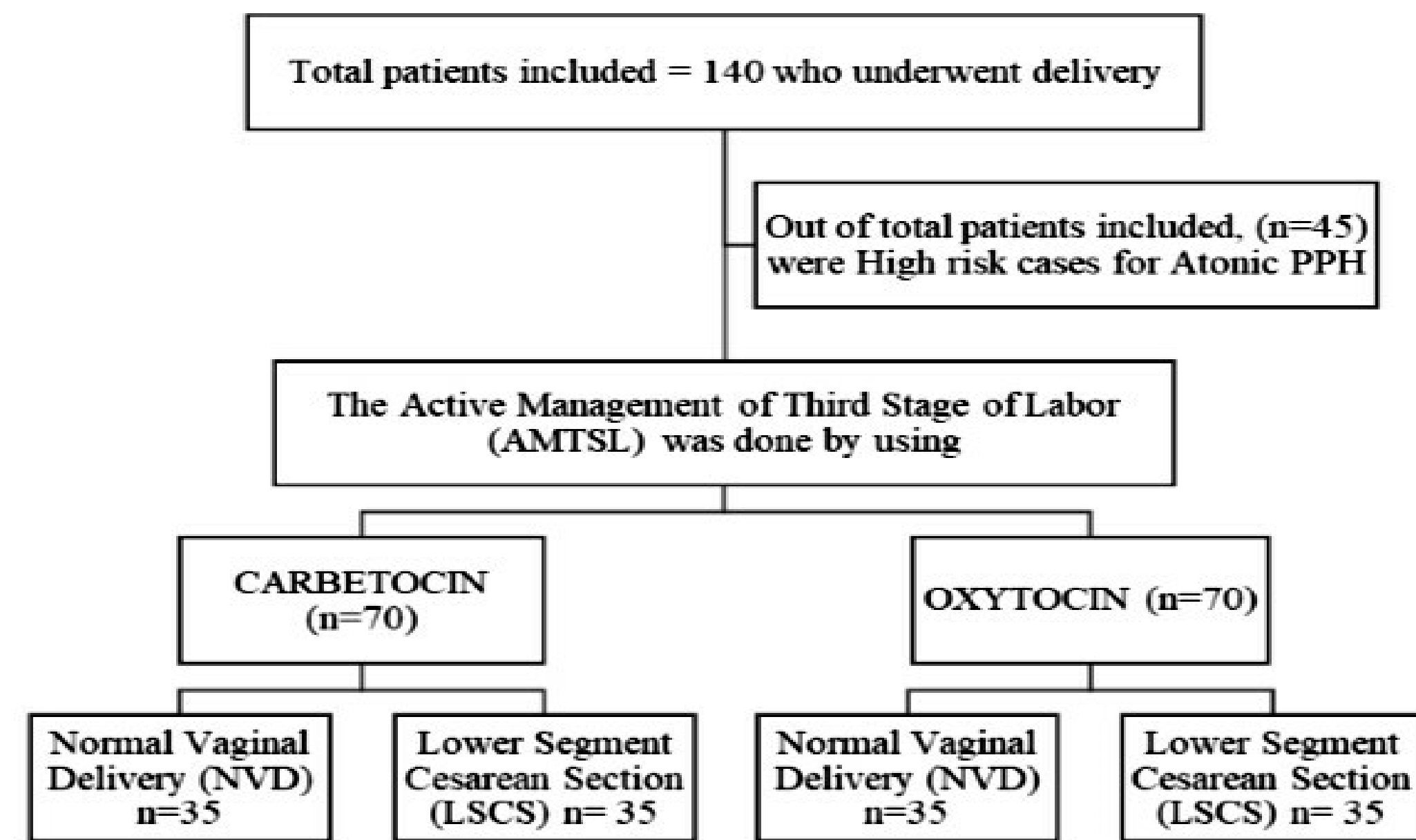


Carbetocin, a unique uterotonic, approved globally for medical use since last 2 decades, lately and recently introduced in India. Carbetocin is a long acting synthetic analogue of oxytocin with agonist properties, molecular structure different from oxytocin can lead to enhanced stability, lower affinity for vasopressin, rapid onset of action of 1-2 mins, prolonged duration of action of approximately 1 hour and a better safety profile compared to oxytocics. It addresses the concerns of available oxytocics which require special storage conditions, questionable efficacy after drug degradation and associated side effects.



MATERIALS & METHODS

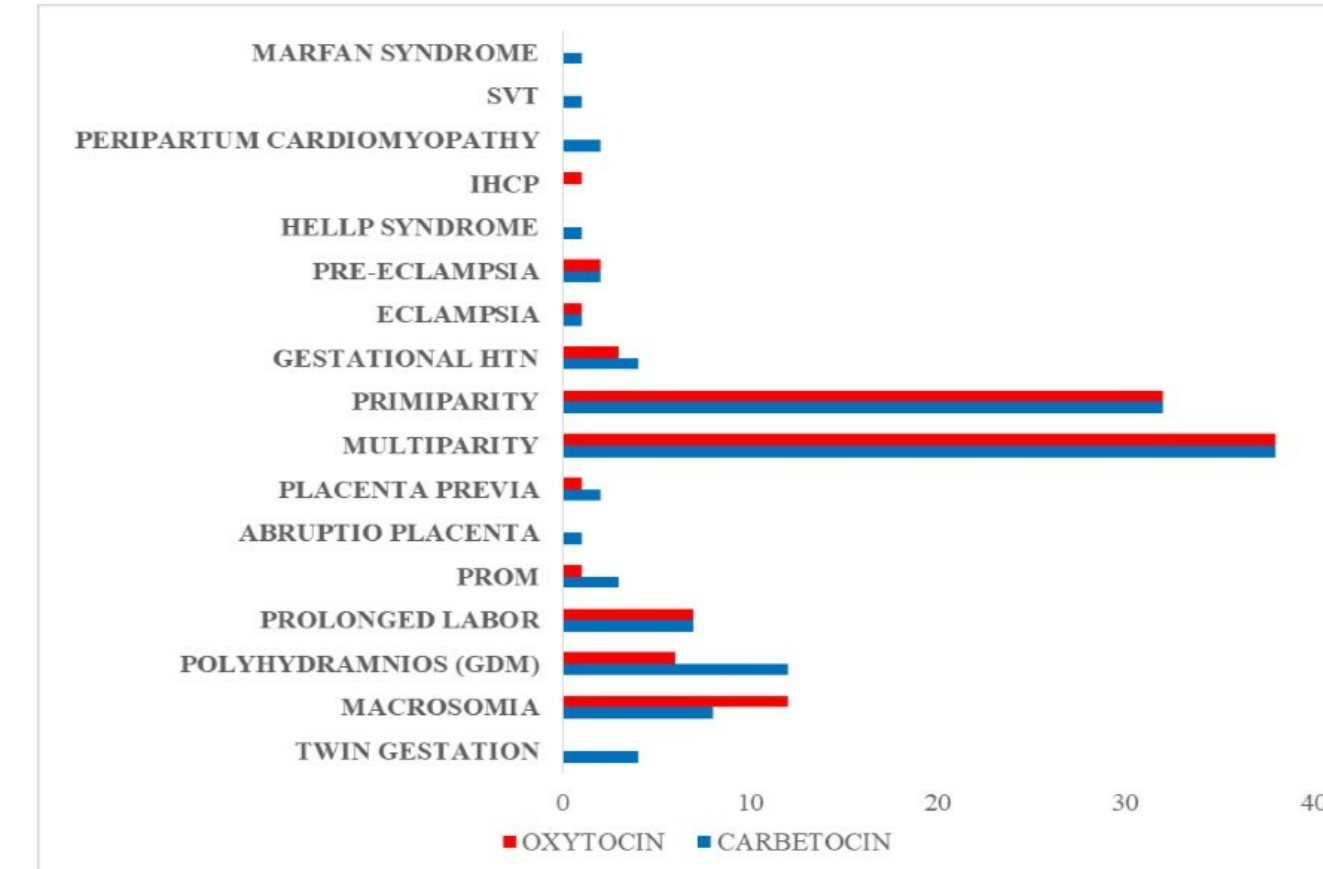
In our present study, the AMTSL was done using 10 U IM with 20U IV infusion of OXYTOCIN in oxytocin group comparing with 100 µg CARBETOCIN IM in carbetocin group at delivery to anterior shoulder of the mother.



RESULTS & DISCUSSION

A prospective observational study was carried out for a period of 6 months (January 2022 – June 2022) in Obstetrics and Gynecology Department in a tertiary care hospital.

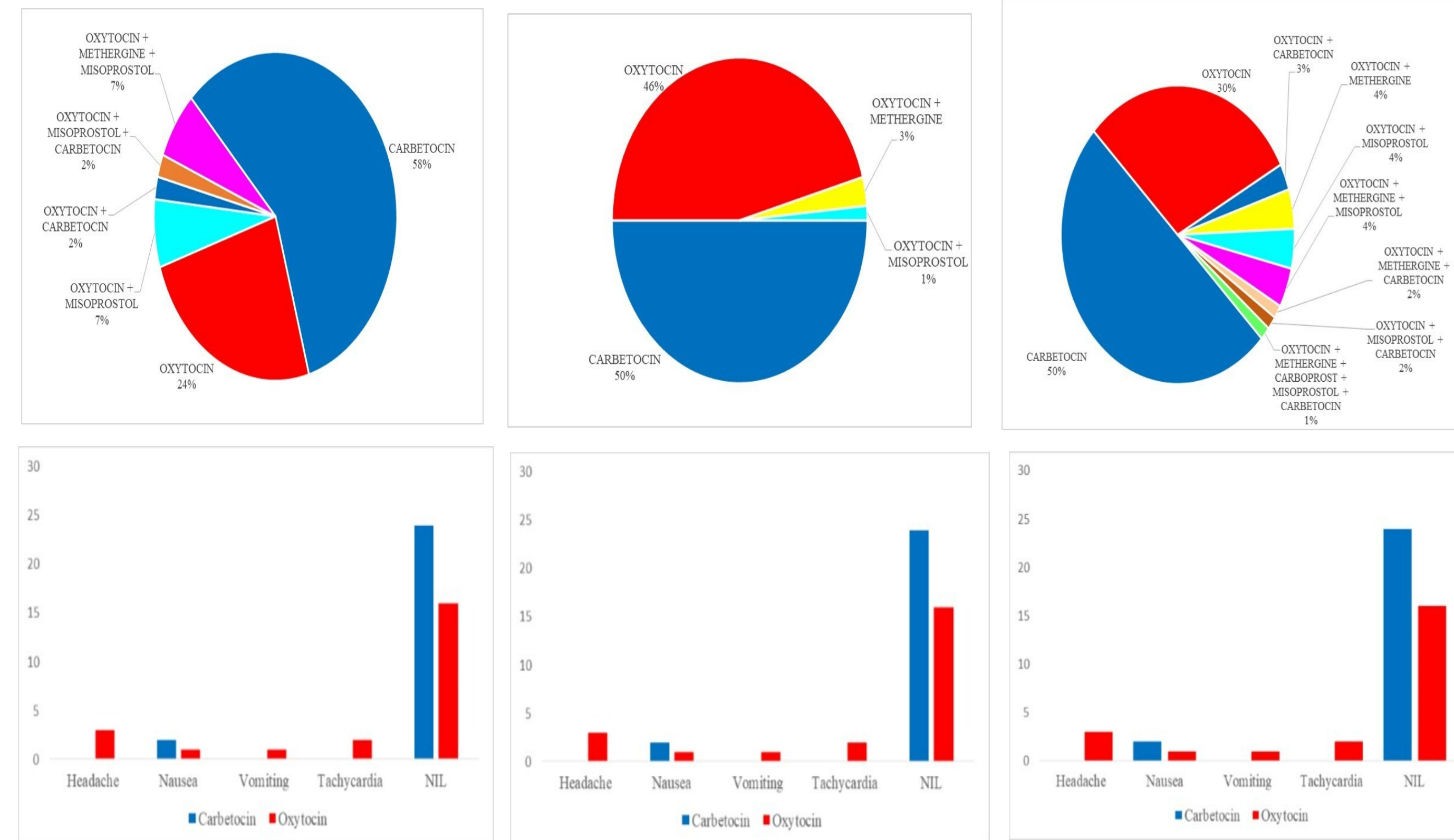
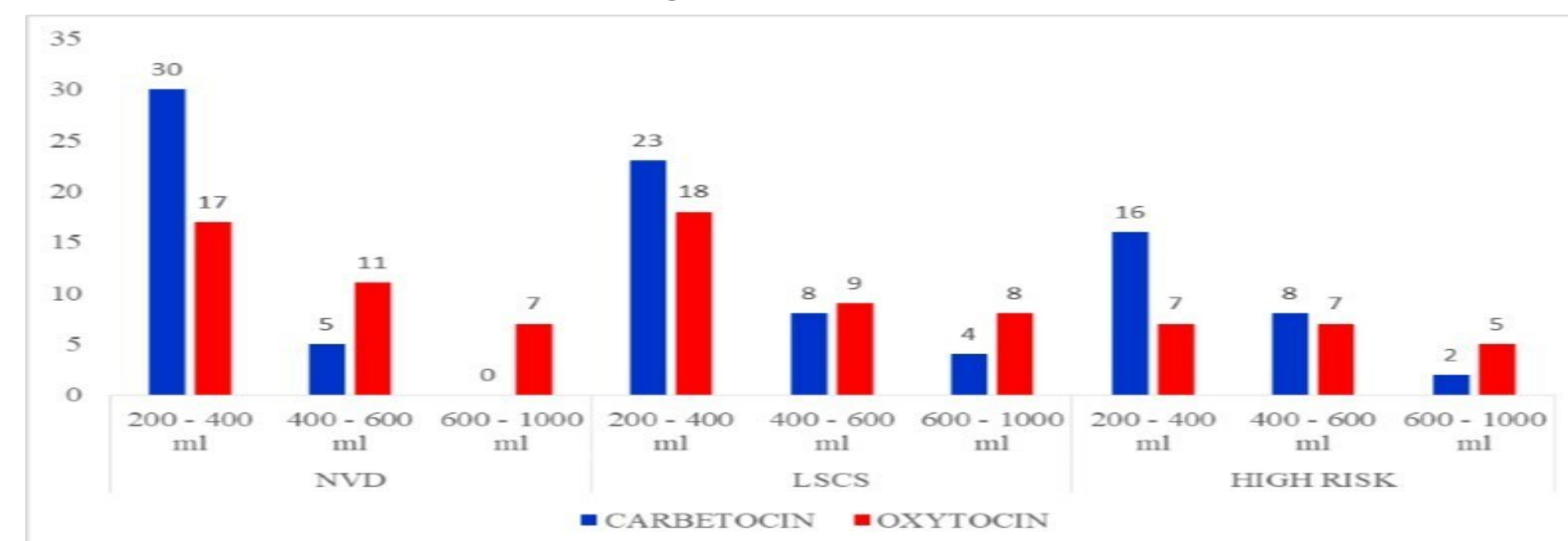
S.NO.	CHARACTERISTIC	NVD	LSCS	HIGH RISK CASES
1	Age (Mean ± SD)	26 ± 3	28 ± 4	27 ± 4
2	Height (Mean ± SD)	157.0 ± 5.7	154.7 ± 6.6	154.1 ± 8.6
3	Weight (Mean ± SD)	71.6 ± 10.8	76.3 ± 11.6	73.8 ± 12.7
4	BMI (Mean ± SD)	29.14 ± 4.20	31.94 ± 5.23	31.34 ± 6.08
5	Gravida (N)			
	PRIMI	38	26	22
6	Multi	32	44	23
	Gestational age (Mean ± SD)	37 ± 2	37 ± 1	35 ± 2
7	Mode of delivery (N)			
	Forceps	8	0	2
	NVD	62	0	15
	LSCS	0	70	28



Primary Outcomes:

The primary outcomes of our study were to observe:

- . The amount of blood loss after the uterotonic administration following delivery
- . Need for additional uterotonics to cope up with the loss of blood
- . Observe the side effects of drugs after uterotonic administration

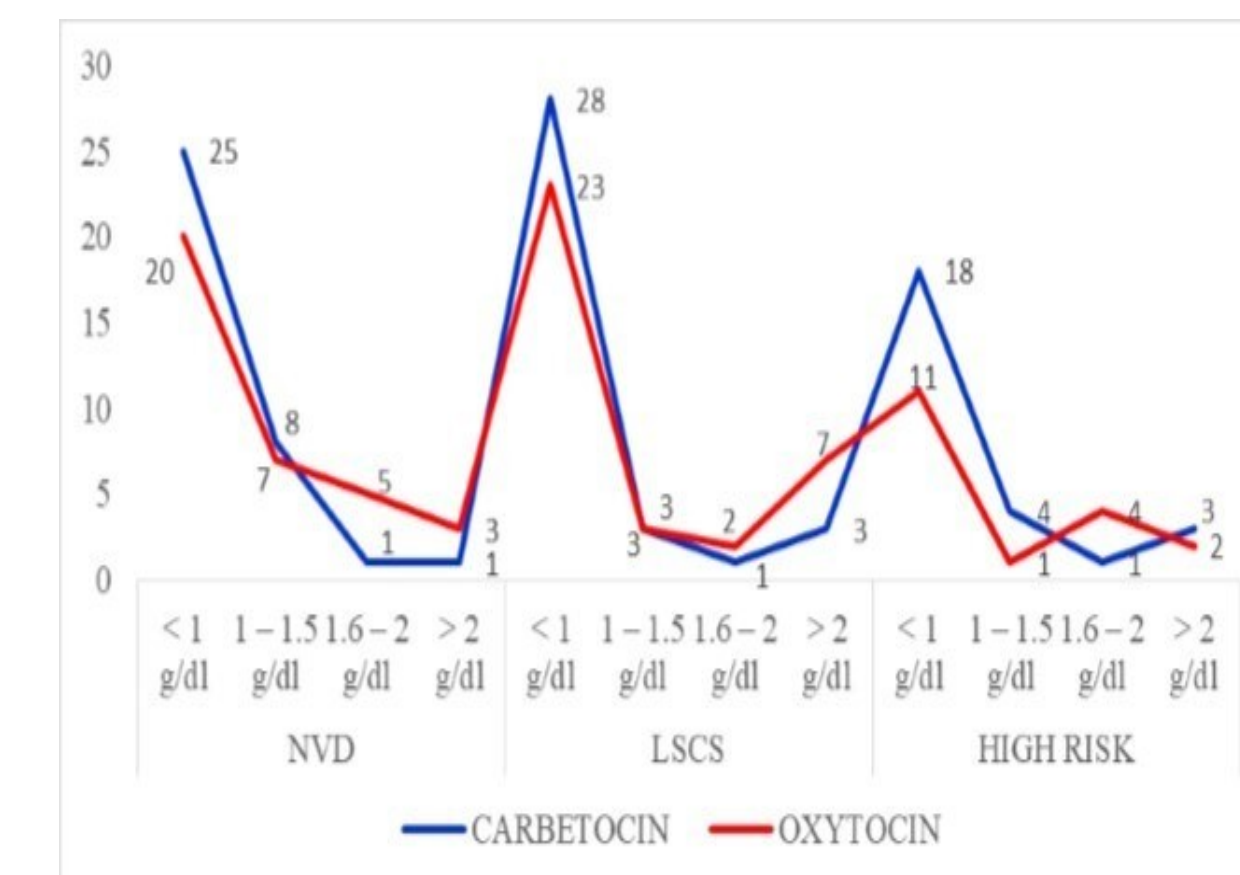


Secondary Outcomes:

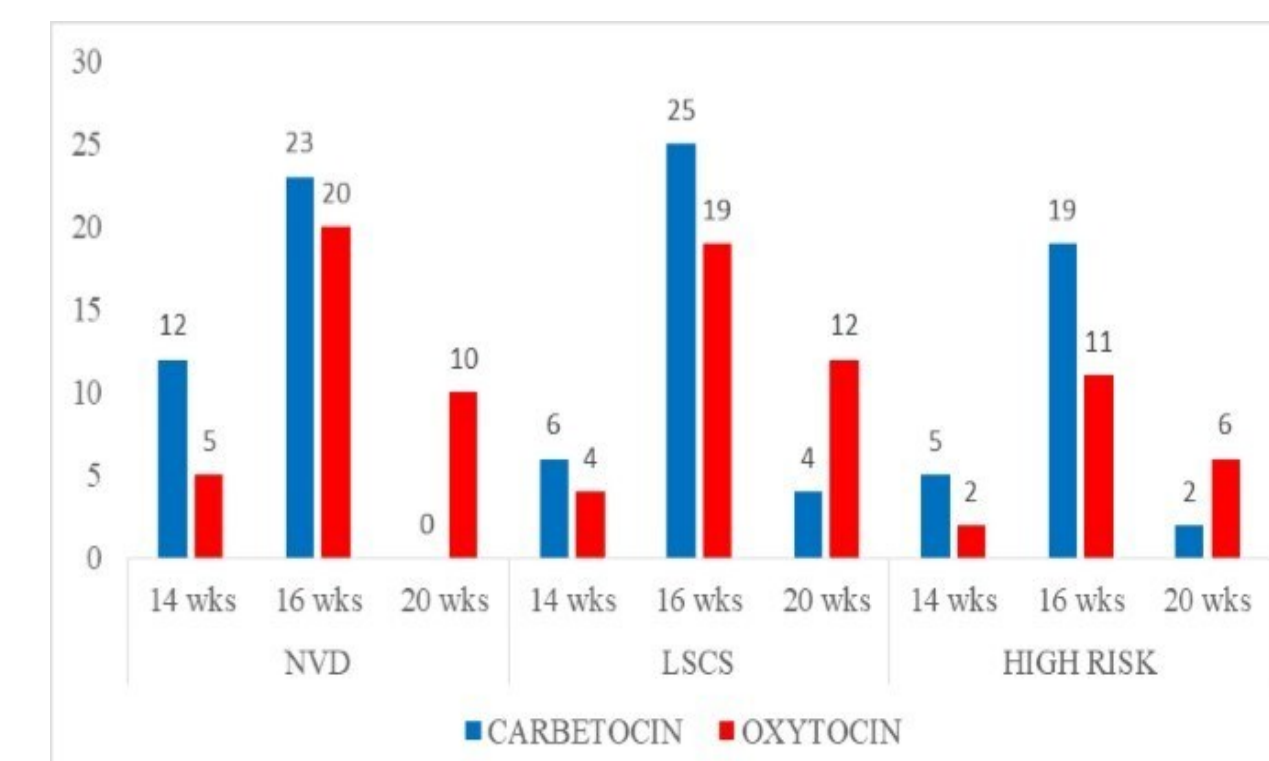
The secondary outcomes of our study were to observe:

- . The fluctuations in hemodynamic parameters like pulse rate and blood pressure
- . Drop in hemoglobin (difference in pre and post hemoglobin)
- . Measurement of uterine tone
- . Measurement of uterine position

CASES	SRP (mm Hg)	CARBETOCTIN	OXYTOCTIN	DBP (mm Hg)	CARBETOCTIN	OXYTOCTIN	P VALUE
HYD	< 110	6	35	< 70	7	34	0.00*
	> 110	29	0	> 70	28	1	
LSCS	< 110	7	35	< 70	9	35	0.00*
	> 110	28	0	> 70	26	0	
HIGH SRISK	< 110	4	19	< 70	8	19	0.00*
	> 110	22	0	> 70	18	0	



CASES	UTERINE TONE	TIME	CARBETOCTIN	OXYTOCIN	p VALUE
NVD	Atonic	10 mins	0	8	0.05*
		1 hr	0	0	
		2 hrs	0	0	
	Contracted	10 mins	35	27	
		1 hr	35	35	
		2 hrs	35	35	
LSCS	Atonic	10 mins	1	8	0.028*
		1 hr	0	0	
		2 hrs	0	0	
	Contracted	10 mins	34	27	
		1 hr	35	35	
		2 hrs	35	35	
High risk	Atonic	10 mins	1	3	0.000*
		1 hr	0	0	
		2 hrs	0	0	
	Contracted	10 mins	25	16	
		1 hr	26	19	
		2 hrs	26	19	



CONCLUSION

In response to the newly available evidence, FIGO & ICM strongly recommend the use of uterotonic drugs during the active management of third stage of labor. The RCOG & SOGC also strongly recommend the use of Carbetocin as an uterotonic in prevention of PPH in cesarean deliveries. The heat stable (Room temperature stable) carbetocin, a newer uterotonic drug which is recently introduced in India and added to the WHO's essential drug list in 2019. It does not require refrigeration and therefore eliminates the costs associated with cold chain maintenance, storage and transport for non-heat stable uterotonics.

Even though a single vial of carbetocin costs more than a single ampoule of oxytocin, it is still a very economical choice considering its ease of IM administration while the latter needs IV fluids, cost related to cold chain maintenance and need for additional uterotonics in some cases to get the same outcomes of the former, that also has better hemodynamic stability and safety profile and it can be a better alternative to oxytocin and cost effective even in low resource settings.

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