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Evaluation of carbetocin use during caesarean section and instrumental deliveries in the operating theatre.

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Introduction

Commonly used uterotonics for deliveries at St Michael's Hospital (SMH) include carbetocin, oxytocin and Syntometrine. Carbetocin an ultra-long acting analogue of oxytocin with a similar side-effect profile, has been used in the prevention of postpartum haemorrhage (PPH) at SMH since 2009. Its use reduces the need for an oxytocin infusion following initial bolus[1]. Only a minority of other units use carbetocin. The audit aimed to assess current uterotonic practice for both caesarean section (CS) and instrumental vaginal deliveries (IVD) in theatre.

Methods

A retrospective snapshot audit was performed over a one month period in 2020. All CS's and IVD's in theatre were included, 72 cases in total. Electronic patient notes were analysed and data collected including procedure in theatre, type of anaesthetic, uterotonic agents given and occurrence of PPH. The audit has since been presented at local audit and governance meetings.

Results

All patients were ASA II or III with a median age of 33 years. 97% of cases were performed under regional anaesthesia (spinal, epidural or CSE). Two (3%) patients underwent a general anaesthetic, these were both category one CS's. Carbetocin was given in >97% of all deliveries in theatre as the first agent. Two (3%) patients received a different first line agent (one elective CS received oxytocin, one IVD received Syntometrine). 42% of patients received an oxytocin infusion following a uterotonic bolus, the majority were in emergency procedures. Five women had a PPH, three between 1 - 2L and two >2L. Of the PPH group two were elective CS's, two emergency CS's and one IVD. All received two or three uterotonics plus tranexamic acid.

Uterotonic used	No of cases	EL CS	EM CS	IVD
1st line carbetocin	**70 (97%)**	**21 (95%)**	**27 (100%)**	**22 (96%)**
1st line other	2 (3%)	1	-	1
Oxytocin infusion	**30 (42%)**	**5 (23%)**	**12 (44%)**	**13 (57%)**
2nd agent Syntometrine	3 (4%)	1	1	1
3rd agent	8 (11%)	2	2	4
total	72	22	27	23

Discussion

Anaesthetists use carbetocin almost universally as first line in all theatre deliveries. The majority of IVD's received carbetocin and this may be down to the fact the anaesthetists are giving the uterotonics in theatre and use a familiar drug and routine in which to give it. Following the IMox data[2] (with Syntometrine as superior to carbetocin in needing a 2nd agent) and discussion at local audit and governance meetings, an education reminder has been sent to all obstetricians and anaesthetists to use Syntometrine as first line for IVD's in theatre. Carbetocin reduces requirements for further drugs or oxytocin infusion. Oxytocin infusion was used almost twice as frequently at emergency CS as compared with elective CS. This reflects the continuation of infusions that were used during labour at a higher rate post-delivery. Syntometrine was the usual second-line drug, however ergometrine is a more logical choice. Carbetocin will have a continuing effect on oxytocin receptors at the point when the second drug is required therefore giving oxytocin will be of no benefit[3].

References

1. Su LL, Chong YS, Samuel M. Carbetocin for preventing postpartum haemorrhage. Cochrane Database of Systematic Reviews 2012, issue 4 Art No:CD005457. DOI:10.1002/14651858.CD0005457.pub4.
2. Nelson Hvd, O'Brien S, Burnard S et al. Intramuscular oxytocin versus syntometrine versus carbetocin for prevention of postpartum haemorrhage after vaginal birth: a randomised double-blinded clinical trial of effectiveness, side-effects and quality of life. BJOG 2020. Accessed: https://doi.org/10.1111/1471-0528.16622
3. Heesen M, Carvalho B, Carvalho JCA, Duvekot JJ, Dyer RA et al. Guidelines: International consensus statement on the use of uterotonic agents during caesarean section. Anaesthesia 2019;79:1305-19.