

Incidental surgery during pregnancy and sugammadex usage - a four year retrospective review

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Introduction

The use of sugammadex within anaesthetic practice has become widespread over recent years, due to its efficacy in reversing aminosteroid-induced neuromuscular blockade¹. However, 2019 Society for Obstetric Anesthesia and Perinatology (SOAP) guidelines recommend avoiding sugammadex during ongoing pregnancies due concerns regarding progesterone encapsulation². Around 1% of parturients will require non-obstetric surgery during pregnancy³.

Aim

We aimed to investigate outcomes following reversal of neuromuscular blockade in patients undergoing incidental surgery in pregnancy

Method

All female patients of childbearing age (age 15-45) undergoing surgery within NHS Greater Glasgow and Clyde between 1st July 2018 to 30th June 2022 were retrospectively identified from the electronic theatre booking system (Centricity™ Opera, General Electric Healthcare). Using birth registry data from the maternity electronic notes system (BadgerNet™, Clevermed), we then identified patients undergoing surgery in the 9 months prior to pregnancy completion. Patient notes were then examined determine pregnancy status at the time of surgery, demographics, anaesthetic technique and neonatal outcomes.

Results are presented as median [IQR] or by count (%). Statistical analysis was via Kruskal-Wallis rank sum test and Fisher's exact test, using R software.

Caldicott guardianship was obtained and requirement for ethical approval waived by the local research ethics committee.

Characteristic	Sugammadex reversal (n=23)	Glycopyrrolate / neostigmine reversal (n=15)	Atropine / Neostigmine reversal (n = 4)	P Value
Age at booking (years)	32 [29-36]	30 [27.5-32.5]	30.5 [28.25-33]	0.6
Gestation at time surgery (weeks)	15 [11-18]	12 [7-20]	26 [20.5-30.25]	0.11
Gestation at delivery (weeks)	38 [37-40]	39 [36.5-39]	37.5 [37-38]	0.6
Intra-abdominal surgery performed?	12 (52.2%)	10 (66.7%)	2 (50.0%)	0.7
Maternal critical care admission post-surgery	1 (4.3%)	1 (6.7%)	0 (0.0%)	0.7
Livebirth	22 (95.6%)	14 (93.3%)	4 (100%)	>0.9
Neonatal resuscitation	3 (13.0%)	1 (6.7%)	0 (0.0%)	0.7
Neonatal unit admission post-delivery	5 (21.7%)	3 (20.0%)	1 (25.0%)	>0.9

Results

Over the four year study period, 106 patients underwent non-obstetric surgery during pregnancy. Of these, 51 received either rocuronium or vecuronium and 23 were reversed with sugammadex (median dose 200mg [200-400mg]). Of the remaining 28 patients, 15 were reversed with glycopyrrolate/neostigmine and 4 with atropine/neostigmine. We excluded nine patients where no mode of reversal was recorded.. Results are summarised in the table 1.

The single fetal demise in the sugammadex group occurred 33 weeks following surgery. Within the glycopyrrolate/neostigmine group, the single fetal demise occurred 15 weeks post-surgery. Five patients delivered within 1 month of surgery, however all underwent surgery in the third trimester (median gestation at time surgery 36 weeks [34-39 weeks]).

Discussion

We demonstrate no difference in foetal outcomes between those treated with sugammadex and other forms of neuromuscular blockade reversal within the antenatal period. These results are in keeping with recently published work¹. Our study is limited by low numbers and by the use of birth registry data, as women suffering miscarriages may have been missed. Further work prospectively studying the effects of sugammadex in ongoing pregnancies is required.

References

1)

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