Raising Awareness of the Interaction Between Sugammadex and Hormonal Contraception

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• To highlight the important interaction between sugammadex and hormonal contraception

• To describe the guidance for patients when sugammadex is used alongside hormonal contraception

• To share results of our departmental survey

• To share Gloucestershire Royal Hospital’s patient information leaflet

• To discuss future project aims and invite suggestions from other trusts
Sugammadex

- The first selective relaxant binding agent
- A modified gamma-cyclodextrin molecule
- It encapsulates muscle relaxant molecules in a 1:1 ratio
- For use in the reversal of the aminosteroid rocuronium, and to a lesser extent vecuronium\(^1\)
Hormonal Interaction

- Sugammadex can bind to steroid hormones leading to increased clearance

- Pharmacokinetic modelling has suggested that progesterone levels may decrease by up to 34% when exposed to 4mg/kg Sugammadex\(^1,2\)

- FDA specifically highlights this interaction, specifically the risk of lowering of plasma progesterone concentrations\(^3\)

- BNF states that the interaction between Sugammadex and hormonal contraceptives is "theoretical" but "severe"\(^4\)
Interaction Advice

Electronic Medicines Compendium, UK⁵:

- A decrease in progesterone of 34% is similar to the decrease seen when a daily dose of an oral contraceptive is taken 12 hours too late, which might lead to a reduction in effectiveness. For oestrogens, the effect is expected to be lower.

**Oral contraceptive** (combined or progesterone only)

- Sugammadex administration equivalent to one missed daily dose
- Follow manufactures' "missed pill" guidance

**Non-oral hormonal contraceptives**

- For example, IUD, Implant, Depot injections
- Use non-hormonal methods for next 7 days
Implications

• Life changing effects for patient if interaction results in an unplanned pregnancy

• Medico-legal implications for anaesthetists if there is failure to communicate interaction and accurate advice
Departmental Survey

- Anonymous survey
- Distributed online using Survey Monkey
- 34 responses from different grades of anaesthetists
  - Consultants
  - Registrars
  - SAS grades
  - Core/ACCS trainees
Are you aware of the interaction between sugammadex and progesterone-containing contraceptives?

67% of participants stated they were aware of an interaction

Do you routinely advise patients on their contraceptive management if you have administered sugammadex?

30% stated they routinely advised patients of this interaction following administration

If yes, when do you give this advice?

- 50% advised patients in recovery following administration
- 30% advised patients pre-operatively if usage was predicted to be likely
- 20% advised patients post-operatively on the ward following administration
Departmental Survey Results

Do you feel confident in the advice to give to a patient on the combined/progesterone-only oral contraceptive pill?

Do you feel confident in the advice to give to a patient on other hormonal contraceptives e.g. Mirena coil, depot injection or implant?
Departmental Survey Results

Do you think that a patient leaflet with advice for the different contraceptives would be useful?

100% of participants stated that a patient information leaflet would be useful

If a patient leaflet was produced, where would it best be distributed from?

- 18% of participants stated in theatres
- 82% of participants stated in recovery
Patient Information Leaflet Development

• Patient information review group involvement with members of the public to ensure appropriate lay terminology used

• Leaflets printed in theatre recovery

• Liaison with senior nurse in charge of recovery

• Email to department to notify of survey results and production of patient information leaflet
Contraceptive advice for patients following the administration of Sugammadex

Introduction
During an operation, medications are sometimes given to relax muscles to help with surgical and anaesthetic procedures. At the end of the operation, the muscles need to be back to their normal strength so medication may be given to help this.

Today you were given the medication sugammadex to reverse the effects of the muscle relaxant.

Sugammadex has an interaction with the hormone progesterone and may reduce the effectiveness of progesterone-containing contraceptives. This can temporarily increase your chance of pregnancy.

This interaction does not happen with other anaesthetic-related medications.

What should I do?
If you are taking an oral contraception, such as the combined oral contraceptive pill (COCP) or the progesterone-only contraceptive pill (mini-pill) and you have taken your pill this morning then you must follow the instructions for a ‘missed pill’ in the manufacturer’s leaflet included in the pill packet.

Sugammadex may also reduce the effectiveness of other hormonal contraception methods such as the ones listed below:
- Contraceptive implant
- Hormonal Intra-Uterine System (IUS or ‘coil’ e.g., Mirena®, Jaydess®, Levosert®, Liletta®, or Kyleena)
- The contraceptive injection (such as Depo-Provera®, Sayana Press® or Noristerat®)
- The contraceptive patch (Evra®)
- Vaginal ring

Therefore, you must use non-hormonal (barrier) methods for the next 7 days to avoid pregnancy. Examples of non-hormonal (barrier) methods include:
- male condom
- female condom
- female diaphragm
- female cervical cap

References

Acknowledgment
With grateful thanks to Dr Jo Gumley, ACCS anaesthesia trainee for producing this information for patients attending Gloucestershire Hospitals NHS Foundation Trust.

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Patient Information Leaflet

• At a local QI meeting the project was discussed
  - It was felt as a department that the uptake of the leaflet still required improvement
  - It was felt that additional interventions would be needed to improve the number of patients receiving appropriate contraceptive advice, including steps to aid identification of patients
Future Interventions

**Preoperative**
- Information communicated at preop clinics
- Guidance available on preop internet page
- Anaesthetic charts modified to specifically include question regarding contraception

**Intraoperative**
- Stickers can be applied to anaesthetic chart as a prompt for leaflet and advice in recovery by recovery nurse/anaesthetist

**Postoperative**
- Prompts in recovery for sugammadex contraceptive advice
- Education sessions for anaesthetists and recovery staff
References

1. Bridion (sugammadex) (2021) [https://secure.healthlinks.net.au/content/msd/pi.cfm?product=mkpbridi]


Thank you