Experience with Oxytocin

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Background

- ***Disclaimer: All information only from single centre, not representative of nationwide data***
- Oxytocin injections and infusions prepared by nurses in the ward
- Oxytocin used for several indications with different regimens depending on indication
  - Induction or augmentation of labour
  - Prevention of Postpartum Hemorrhage (PPH) or post-abortion hemorrhage
    - Normal Vaginal delivery
    - Elective Caesarean Section vs Intrapartum Caesarean Section
  - Treatment of PPH
- 2 oxytocin containing preparations in our hospital
  - Oxytocin injection (Syntocinon)
  - Oxytocin + Ergometrine injection (Syntometrine)

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Information Sources

- Anonymized oxytocin related medication errors/near misses data requested from risk management system (RMS)
  - Data from 2017-April 2022 was reviewed
    - 3 incidents reported (1 actual error, 2 near misses)
    - Voluntary reports, under-reporting possible
- Personal communication with nurse clinicians working on the labour ward
  - Felt that team is generally well trained and familiar with use of oxytocin
  - Shared some of their risk mitigation strategies, will share some of the good practices in subsequent slides

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ERROR/NEAR MISSES

What happened?

Learning points / Food for thought

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RMS data – Actual Error

- Occurred in the labour ward
- Dr's instruction to dilute 10 units of oxytocin in 500mL NS and run the infusion at **72mL/hour** i.e., 1.44 units/hour for augmentation of labour
- Nurse accidently keyed the wrong infusion rate into infusion pump and started the infusion at **500mL/hour**
- Mistake was realized after 2 mins and oxytocin infusion was stopped immediately
- Fortunately, nothing untoward happened to the patient however not clear from the report if oxytocin infusion was restarted after the incident

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Learning Points

- Risk of hyperstimulation and even uterine rupture with high doses of oxytocin infusion
- Importance of being vigilant when entering the flow rate into the infusion pump. Always double check and good practice to get a colleague to countercheck before starting the infusion
- Ensure good lighting in the room when setting up infusion sets

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RMS Data – Near Miss #1

- Occurred in the inpatient gynaecology ward
- Patient with multiple cardiac conditions underwent mid-trimester termination of pregnancy
- **Syntometrine** (combination of oxytocin + ergometrine) was ordered instead of **oxytocin (Syntocinon)** for prevention of post-abortion hemorrhage
- Nurse recalled that the ergometrine component of syntometrine is contraindicated in patients with heart problems and called the pharmacist to confirm if oxytocin may be a better choice for this patient
- Pharmacist confirmed that oxytocin would be more suitable for this patient. Dr was informed of the suggestion to substitute syntometrine with oxytocin and suggestion was accepted

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Learning points

- Not directly related to this near miss but…
- Probably a good idea to **use the generic name "oxytocin"** instead of the brand name "Syntocinon" in clinical notes
  - Avoid it becoming a sound alike medication with "Syntometrine".
  - Inappropriate abbreviations such as **"Synto"** still being used quite often in clinical notes. While experienced staff all know "Synto" refers to Syntocinon (Oxytocin), new staff may think it means Syntometrine instead

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RMS Data #2

- Occurred at High Dependency Unit (HDU)
- Patient had undergone an elective caesarean section in view of placenta previa major covering cervical os and was transferred to HDU for hemodynamic monitoring. She arrived at HDU from the operating theatre with an ongoing oxytocin infusion (30 units in 500ml NS, flow rate not mentioned)
- Post-operative instructions included the statement to continue **"IV Syntocinon 40 units over 4 hours"**.
- House officer (Junior Dr) saw this and ordered **IV oxytocin 40 units in 4000mL, run at 1000mL/hour**. Pharmacist overlooked the error in this order and proceeded to verify it.
- Nurse flagged up to the Dr that 1000mL/hour is too much. However, the house officer had trouble putting in the correct order and repeatedly put in erroneous orders. Only after a few tries did the order finally get put in correctly.

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Learning Points

- IT issues
  - Some junior Drs may have trouble navigating the hospital's electronic medical record system and end up putting in wrong orders
  - Good practice to regularly review if order sets are updated and user friendly
- Food for thought – Do we have too many varying dosing regimens for oxytocin?
  - Prevention of PPH/post abortion hemorrhage: IM 10 units
  - Induction/Augmentation of labour: IV 10units in 500mL NS
  - Treatment of PPH: IV 30-40units in 500mL NS over 4 hours, 6 hours, 24 hours etc.

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GOOD PRACTICES TO SHARE

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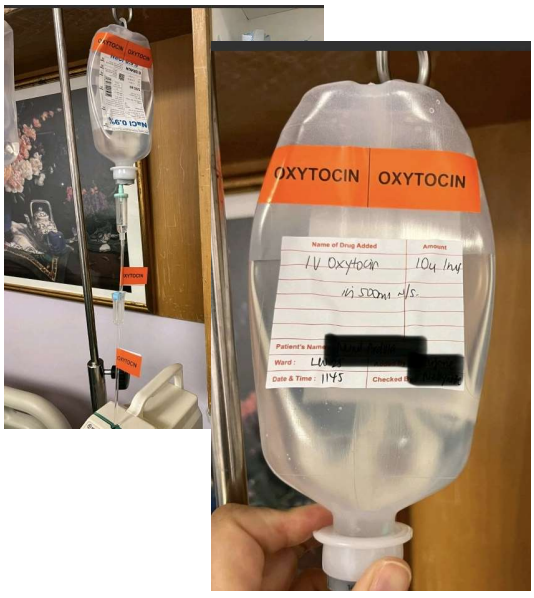
Good practices

- Use of bright orange "OXYTOCIN" stickers
- Helps distinguish the oxytocin infusion from the many other infusions the patient may have ongoing



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Good practice

- Establishment of standardized oxytoxin infusion regime (right) for induction or augmentation of labour
- Consensus on the routine max rate for nulliparous and multiparous women as a safety check point (red boxes)
- Increased clarity for ground staff due to less variable practices according to individual obstetricians' preference

Oxytocin Infusion Regime for Multiparas and Nulliparas

	Oxytocin	
	Dose (mU/min)	Rate of Infusion (mL/hr)
Dose increment interval of every 30min until contractions 4-5:10	1	3
	2	6
	4	12
	8**	24
	12	36
	16***	48
	20	60
	24	72

Concentration: 10 IU Oxytocin (Syntocinon®) in 500 ml normal saline (N/S)
Dose increment interval of **30 minutes**

ESSENTIAL SAFETY POINT:

** No further increase for MULTIPARAS unless otherwise ordered by Registrar and above. Caution with further increase for GRAND MULTIPARAS.

*** No further increase for NULLIPARAS unless otherwise ordered by Registrar and above.

NB: No further increase should be ordered once uterine contractions are occurring 4 to 5 in 10 minutes each lasting at least 40 – 60 seconds.

During augmentation of labour, adequate contractions may be achieved with a lower dose of Oxytocin.

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