

Training: CDs & Formulations

Administering drugs Safely and Accurately

21st July 2004

Objectives:

- To learn/revise about different types of Drug formulations
- To increase knowledge & understanding of Opioids.
- To promote safe administration of medicines – starting from prescribing to administration of drug.

Why so many different formulations?

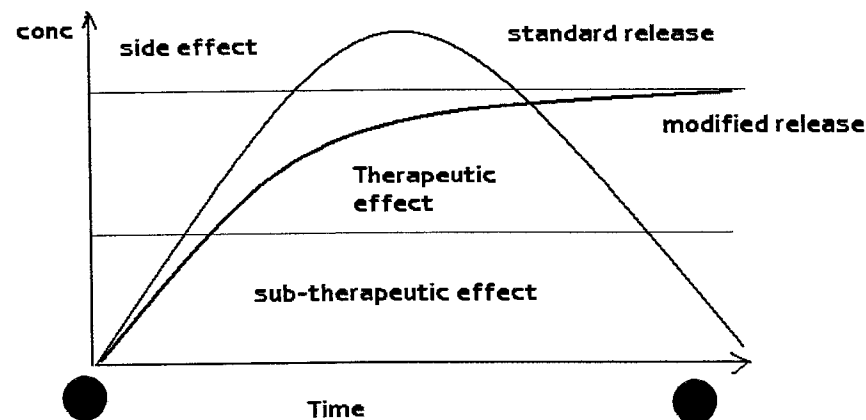
- 7 areas for potential entry into body:
 - Eyes/ears/nose/MOUTH/rectum/vagina & skin.
 - Invasive: injection through skin e.g. iv, im, sc,
- Each route is determined by the patient & the pharmaceutical product form available.
 - E.g. Morphine is stable drug therefore has many p'cut. forms: tabs, caps, m/r, sachets, oral solutions, injections & suppository.
 - Diamorphine – less stable orally \therefore exists in injectable form. Is 2 – 3 x stronger than oral morphine salt.

Glossary of Pharmaceutical terms

- **Solution:** a solute (solid) dissolved in a solvent (liquid) to produce a homogenous system (of equal concentration.)
- **Suspension:** is a liquid (vehicle) containing very fine particles of solids (usually the active ingredient) which stay suspended in the vehicle (after shaking) to contain a predictable amount of solid on administration to the patient.
- **Granules:** are aggregates/clumps of homogenized powders ready to be administered orally or to be dissolved in water before administering.
- **Sachets:** are small envelopes used to contain a unit dose of powder or granules ready to be administered or dissolve in water before admin.

Oral medication

- Standard – immediate release [Coating affects tablet size]
 - Film-coated tabs (polymer), sugar coated tabs.
 - capsules
- Modified release – releases drug slowly over time.
 - Usually 12 hourly or 24 hours → *Swallow whole, not chew.*
- Enteric coated – release drug not in stomach - drug may be gastric irritant or acid-labile. Usually slower onset than std. –Must be *swallowed whole, not chewed.*



Morphine sulphate - which one?

Strong opioid. Useful for severe pain.

- Oral Forms: **'immediate release'** – soln & tabs.
 - 4 hourly dose. (up to 6 times in 24 hrs)
 - Used for **breakthrough pain** & to **titrate** up opioid dose to convert to e.g. modified release 12 hourly [BD].
 - Forms: morphine sulphate 10mg tab (® sevredol).
 - Morphine sulphate solution 10mg/5ml, (® Oramorph soln)
20mg/ml [= 100mg/5ml] (® Oramorph Conc soln.)
- **Modified release (m/r)** 12 hrs: caps/tabs/sachets
 - caps: ® Zomorph can open caps & sprinkle contents on soft food.
 - tabs: ® MST, ® Morphgesic.
 - suspension/sachet: ® MST suspension – dissolve granules in water

Approx. Opioid equivalents guide

from Wessex Palliative care handbook 5th edition

(oral morphine sulphate 30mg \approx sc/im Diamorphine HCl 10mg BNF 47)

| Drug | Total daily dose (24hr) |
|----------------------------|--------------------------------|
| Co-proxamol | 8 tablets |
| Codeine | 360mg |
| Dihydrocodeine | 300mg |
| Tramadol | 150mg |
| Morphine | 30mg |
| Diamorphine (subcutaneous) | 10 – 15mg |
| Oxycodone | 15mg |
| Fentanyl (transdermal) | Complex |

Prescribing Standards – Medicine Policy

1. State **Generic Name & not abbreviated:**
e.g. Morphine sulphate 10mg/5ml solution – NOT oramorph
2. State **Strength/concentration** – if liquid
3. Specify **Form/Route** of admin: sc, im, iv; po, m/r
(modified release, solution, etc. [outpatient Rx – specify tablets or caps.]
4. **Dose** [microgram Not mcg or μg] & **frequency.**
5. **Start Date:** of 1st prescribing & Dr's Signature.
6. **Countersign & Date** discontinued drug. Cross off drug with a Z & through admin side.
7. **PRN:** state reason & max dose frequency in 24hr

Beware of > 1 Opioid prescribed

(on regular +/-or PRN side) & also if > 1 Rx chart!

Drug handling in the Elderly

Drug-induced blood disorders – more common in elderly.

- Administration: swallowing, post-stroke etc.
- Other disease states?
- Food – drug interactions?
- Drug – drug interactions?

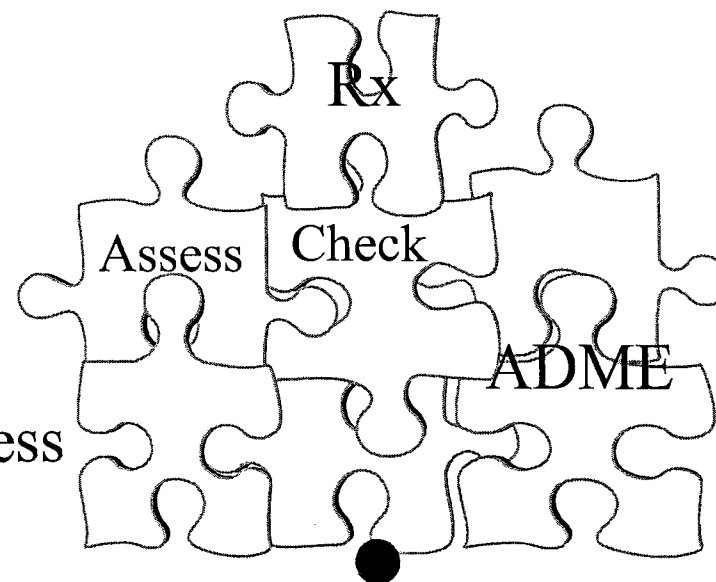
Changes caused by Ageing → alters drug behaviour

- Pharmacokinetics

- Absorption
- Distribution
- Metabolism
- Excretion

- Pharmacodynamics

- end organ responsiveness altered by disease.



Summary

- Elderly require special care – ageing body changes, ↓ renal function, pharmacokinetic & pharmacodynamics, disease states.
- Dose for Elderly: normally $\frac{1}{2}$ **Adult dose**.
- Prescription chart **MUST** be clear, precise & complete – it must comply with Medicines Policy & Law → *or safety is compromised*.
- If in doubt/unsure– always check BNF/ask the doctor, pharmacist, experienced nurse, ask for training etc.
- **DOUBLE** check dose is appropriate; the correct quantity & drug formulation with experienced nurse

Where to Get More Information

It's ok Not knowing everything – you're human.

But if in **DOUBT – CHECK it OUT!**

- In the latest edition of the **BNF**,
- Experienced Nurse.
- Portsmouth District Formulary (Green A5 bk)
- Wessex Palliative Care Handbook 5th Edition
- Pharmacist: Sue Chan, Bleep 13
- Pharmacy at QAH or SMH.
- Other sources: internet, Doctor, textbooks, Rowans Hospice or Countess Mountbatten.