

Maximum Safe Dosage (MSD)

- ⌘ Equates to the maximum amount of the drug that can be given within a 24 hour period
- ⌘ Is based on the person being healthy
- ⌘ Reduce the MSD in cases of known morbidity (liver disease, kidney disease etc)
- ⌘ Can help determine the choice of anaesthetic

Calculating the MSD

- ⌘ You must know
 - Patients weight in kilograms
 - Medical history
 - MSD for each anaesthetic (mg/kg)
 - Volume x % x 10 rule
 - Basic maths!

MSD for each anaesthetic

- ⌘ Lignocaine: 3 mg/kg
- ⌘ Prilocaine: 6 mg/kg
- ⌘ Bupivocaine: 2 mg/kg

Volume percentage rule

- ⌘ 1ml of 0.25% = 2.5mg
- ⌘ 1ml of 0.5% = 5mg
- ⌘ 1ml of 1% = 10mg
- ⌘ 1ml of 2% = 20mg
- ⌘ 1ml of 4% = 40mg
- ⌘ 2ml of 1% = 20mg
- ⌘ 5ml of 1% = 50mg
- ⌘ 10ml of 1% = 100mg

Examples

- ⌘ 70kg healthy person
 - ⌘ What is the MSD for Lignocaine and Prilocaine
- Lignocaine: $70 \times 3 = 210$ mgs of drug**
- Prilocaine: $70 \times 6 = 420$ mgs of drug**

Same Example:

- ⌘ What volume of 2% Lignocaine can be used
- Work out MSD: $70 \times 3 = 210$ mgs of drug
- Refer to volume percentage rule so 1ml of 2% solution will contain 20mgs
- So divide 210 mgs by 20mgs to give you total volume = 10.5 mls of 2% solution

Example:

⌘ What volume of 1% Prilocaine can be used

Work out MSD = $70 \times 6 = 420$ mgs of drug

Refer to volume percentage rule so 1ml of 1% solution will contain 10mgs

So divide 420 mgs by 10mgs to give you total volume = 42 mls of 1% solution

#1 –

60kg male – which anaesthetic to use

How many **mls** of 1% lignocaine can be given

$60 \times 3 = 180$ mgs - Lignocaine

1% solution = $180 / 10 = 18$ mls

#1 –

60kg male – which anaesthetic to use

How many ml of 4% prilocaine can be administered:

$60 \times 6 = 360$ mgs - Prilocaine

4% solution = $360 / 40 =$

9 mls

#1 –

60kg male – which anaesthetic to use

How many ml of .5% bupivocaine can be administered:

$60 \times 2 = 120$ mgs - Bupivocaine

0.5% solution = $120 / 5 = 24$ mls

#2: Healthy 45kg female:

$45 \times 3 = 135$ mg - Lignocaine

**2% solution = $135 / 20 = 6.75$ ml
so 3.37 ml per toe**

#3 – 110kg male:

$110 \times 3 = 330$ mgs – Lignocaine MSD

6ml of 2% = $6 \times 20 = 120$ mgs already given so 210 mgs left

At 1% = $210 / 10 = 21$ mls

#4 – 55kg female 4 nails:

$$55 \times 3 = 165 \text{ mgs – Lignocaine}$$

$$55 \times 6 = 330 \text{ mgs – Prilocaine}$$

$$1\% \text{ sol} = 165/10 = 16.5 \text{ mls total or } 4.1 \text{ mls per toe}$$

$$1\% \text{ sol} = 330/10 = 33 \text{ mls total or } 8.25 \text{ mls per toe}$$

#5 ?? Weight of patient:

$$6 \text{ml } 4\% \text{ prilocaine} = 6 \times 40 = 240 \text{ mgs}$$

$$10 \text{ml } 1\% \text{ prilocaine} = 10 \times 10 = 100 \text{ mgs}$$

$$\text{Total } 340 \text{ mgs} / 6 = 57 \text{ kgs}$$

Questions?

