Calculating IV Rate ml/hr

Example 1: 1 gram of procainamide hydrochloride in dextrose 5% in water is to be infused at a rate of 70 mcg/kg/minute. The IV has a total volume of 500 ml. Your patient’s current weight is 48 lbs. At how many ml/hr will you infuse the IV?

To find the ml/hr:

Step 1 – Write down the patient’s weight and convert
Step 2 – Write down desired infusion dosage
Step 3 – Write down the given IV strength (amt/volume)
Step 4 – Convert as needed
Step 5 – Reduce the units
Step 6 – Perform the math
Solution to Example One

Calculating IV Rate ml/hr

- **Example 1**: 1 gram of procainamide hydrochloride in dextrose 5% in water is to be infused at a rate of 70 mcg/kg/minute. The IV has a total volume of 500 ml. Your patient’s current weight is 48 lbs. At how many ml/hr will you infuse the IV?

  To find the ml/hr:
  
  1. Write down the patient’s weight and convert
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  3. Write down the given IV strength (amt/volume)
  4. Convert as needed
  5. Reduce the units
  6. Perform the math

**Step 1**

\[
\frac{48 \text{ lbs}}{1} \times \frac{1 \text{ kg}}{2.2 \text{ lbs}} = \frac{48 \times 1 \text{ kg}}{1 \times 2.2 \text{ lb}} = \frac{21.8 \text{ kg}}{1}
\]

**Step 2**

\[
\frac{70 \text{ mcg}}{1 \text{ kg/min}} \times \frac{500 \text{ ml}}{1 \text{ hour}} = \frac{21.8 \times 70 \times 500 \times 60 \text{ ml}}{1 \times 1 \times 1 \times 1000000 \text{ hour}} = 45780000 \text{ ml}
\]

**Step 6**

\[
= \frac{45780000 \text{ ml}}{1000000 \text{ hr}} = 46 \text{ ml/hr}
\]

Round ml/hr to the nearest whole number.
Example 2 200 milligrams of vibramycin in dextrose 5% in water is to be infused at a rate of 0.012 mg/kg/minute. The IV has a total volume of 220 ml. Your patient's current weight is 130lbs. At how many ml/hr will you infuse the IV?

To find the ml/hr:

Step 1 – Write down the patient’s weight and convert
Step 2 – Write down desired infusion dosage
Step 3 – Write down the given IV strength (amt/volume)
Step 4 – Convert to hours
Step 5 – Reduce the units
Step 6 – Perform the math
Calculating IV Rate ml/hr

Example 2 200 milligrams of vibramycin in dextrose 5% in water is to be infused at a rate of 0.012 mg/kg/minute. The IV has a total volume of 220 ml. Your patient’s current weight is 130 lbs. At how many ml/hr will you infuse the IV?

To find the ml/hr:

Step 1 – Write down the patient’s weight and convert
Step 2 – Write down desired infusion dosage
Step 3 – Write down the given IV strength (amt/volume)
Step 4 – Convert as needed
Step 5 – Reduce the units
Step 6 – Perform the math

\[
\begin{align*}
\text{Step 1} & : 130 \text{ lbs} \times \frac{1 \text{ kg}}{2.2 \text{ lbs}} = 59.1 \text{ kg} \\
\text{Step 2} & : 0.012 \text{ mg/kg/minute} \\
\text{Step 3} & : 200 \text{ mg} \\
\text{Step 4} & : \frac{1 \text{ hour}}{60 \text{ min}} \\
\text{Step 5} & : \frac{1 \text{ ml}}{200 \text{ mg}} \\
\text{Step 6} & : 59.1 \times 0.012 \times 220 \times 60 \times 1 = 9361.44 \text{ ml} \\
& \div 200 \times 1 = 47 \text{ ml/hr}
\end{align*}
\]