Defining Flow Rate to Reduce Initial Local-Site Adverse Reactions in Subcutaneous Immunoglobulin (SCIg) Therapy

Background

SCIg therapy is a therapeutic alternative which an increasing number of care givers find effective. Successful self-treatment regimen requires confidence of the physician and nurse to empower independence and self-reliance for the patient. Literature and dialogue with SCIg therapy providers reveals that initial local infusion-site reactions are frequent. It is often referred to as being "expected" and "normal", but may be minimized with enhanced clinical insights which can increase patients' compliance. Immunoglobulin manufacturers recommend initial infusion volumes and flow rates which may be adjusted depending on patient outcome.

Many patients believe that local site-reactions are to be "expected" and consider them "normal".

To minimize infusion-site reactions, knowledge of infusion system technology, technique and supplies are important factors for good tolerability and therapeutic outcome of SCIg treatments. It is also important to individualize the therapy and match it to the patient's preferences and lifestyle.

Minimize infusion-site reactions by:

Having knowledge of:
- Infusion system technology
- Ancillary supplies (i.e. flow rate tubing and needle sets)

Individualizing the therapy:
Know patient's preferences and lifestyle

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Purpose

To assist clinicians in using a constant pressure system (CPS) to tailor SCIg therapy regimen to enhance compliance, strengthen patient confidence and control over the infusion. We present clinical strategies to understand the importance of the flow rate and its effect on outcomes.

Goals for the Patient:
- Enhance compliance
- Strengthen confidence
- Give control over infusion

Methods

Knowing the actual flow rate (ml/hr) can be a factor in evaluating the administration and is determined by the patient simply recording the infusion time. It can be done in incremental steps from start to finish of the infusion. The flow rate can be directly calculated using the total volume divided by the infusion time.

Using CPS, create a baseline:

Measure 1st and 2nd half of infusion time

Based on its unique mode of operation (capable of providing feedback), only the CPS can be used to achieve a baseline.

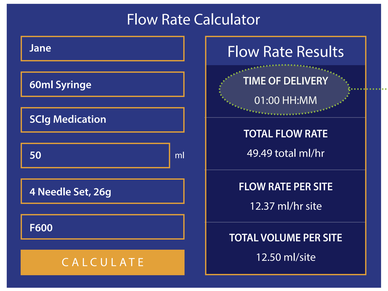
If both half's are equal:
- Infusion-sites are doing well
- CPS set-up is in balance with infusion-site tolerance.

If 2nd half is longer than 1st:
- Infusion-sites are saturated
- CPS is giving feedback when saturation occurs
- Adjustments can be made to accommodate site tolerance

$$\text{Flow Rate (ml/hr)} = \frac{\text{Total Volume (ml)}}{\text{Infusion Time (hr)}}$$

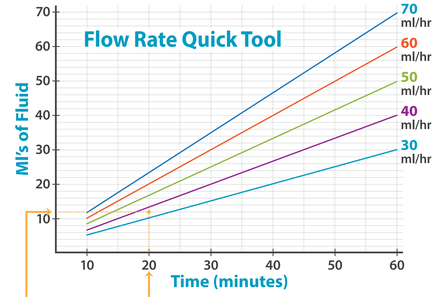
Results

Patients have confirmed actual results were very close to predicted flow rate values after several completed treatment cycles. Patients experiencing infusion difficulty reported longer infusion times.



Estimated infusion time

The chart below displays a family of flow rates in different infusion scenarios. It can be used as a "quick tool" to find the flow rate in ml/hr.

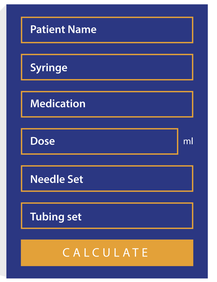


Example shows a scenario with a flow rate measured at 12ml in 20 minutes, during the infusion. The intersection of that point is below the **40** ml/hr flow rate line, measuring around 36ml/hr.

Conclusion

It is important to know the actual flow rate to follow immunoglobulin manufacturers' guidelines, as well as obtaining a baseline for flow rate measurement. Clinicians can confirm the flow rate. A baseline can be created by measuring the time and volume of the infusion and compare it to the expected performance of the total infusion system including ancillary supplies. Based on the results, the clinician can make a decision to adjust the flow rate as one aspect to optimize the SCIg administration.

Peripherals can be adjusted to optimize the SCIg infusion



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