Rituxan Subcutaneous Versus Intravenous Formulations

Rituxan Hycela (rituximab and hyaluronidase) is a newly approved subcutaneous form of intravenous (IV) Rituxan (rituximab) to treat adults with chronic lymphocytic leukemia, diffuse large B-cell lymphoma, and follicular lymphoma. The subcutaneous form can be administered over 5-7 minutes, making it a more convenient medication to administer compared to the larger IV dose. However, the subcutaneous and IV formulations CANNOT be used interchangeably. The subcutaneous dose is distributed in a large volume of fluid (11.7 mL or 13.4 mL) that could be confused as an IV push dose making the two drug formulations prone to mix-ups. Below is a comparison of the two drugs.

Comparison of IV and Subcutaneous Formulations of Rituximab

	Rituximab (Rituxan)	**Rituximab and hyaluronidase** (Rituxan Hycela)
Route	**Intravenous** piggyback (IVPB)	**Subcutaneous**
Dispensing container	**IV bag** (with closed system transfer device attachment)	Single **20 mL syringe**, ready to use (without closed system transfer device)
Vial Size and Concentration (mg of Rituximab)	100 mg/10 mL 500 mg/50 mL (10 mg/mL concentration)	1,400 mg/11.7 mL 1,600 mg/13.4 mL (120 mg/mL concentration with 2,000 units/mL hyalronidase) *****12 times more concentrated than the IV formulation*****
Treatment Dose	Based on body surface area (BSA): 375 mg/m^2 500 mg/m^2	Flat dose: 1,400 mg 1,600 mg
Can be given as first dose?	**YES** – intended for initial therapy.	**NO**, patient must be given a full dose of IV rituximab without severe adverse reactions before switching to a subcutaneous dose
Pre-medications	Acetaminophen 650 mg PO Diphenhydramine IV (per guidelines)	Acetaminophen 650 mg PO Diphenhydramine 25 mg PO
Indications	Rheumatoid arthritis (in combination with methotrexate); granulomatosis with polyangiitis and microscopic polyangiitis (in combination with glucocorticoids); Non-Hodgkins Lymphoma; chronic lymphocytic leukemia	Limited to cancer indications such as chronic lymphocytic leukemia, diffuse large B-cell lymphoma, follicular lymphoma *****NOT indicated for NON-malignant diagnoses*****

Strategies to reduce mix-ups between Rituximab formulations:

- Educate all staff on the differences between the two formulations and the potential for confusion.

References

1. Institute for Safe Medication Practices. (2018). *Nurse Advise-ERR.* Retrieved from Institute for Safe Medication Practices: http://www.ismp.org/newsletters/nursing/issues/NurseAdviseERR201806.pdf

- Ensure all nursing staff understand the proper procedure for administering the large subcutaneous dose of Rituxan Hycela.
- Store each formulation in separate areas or in a way that will help prevent confusion.
- When Rituxan Hycela is dispensed from the pharmacy, clearly label the syringe "FOR SUBCUTANEOUS USE ONLY."

Smart Pumps Left Behind After Transfers

During patient hospital transfers, smart pumps may be left behind accidentally. This can lead to potential medication administration errors due to various drug formularies and pump libraries that are utilized at different hospitals for their specific patient populations.

Recommendations to prevent infusion pump swaps include:

- Apply external labels to pumps with hospital name.
- When possible, list hospital name on primary infusion screen.
- Employ standardized procedures to switch pumps during transfer and to return pumps to the correct organization as soon as possible.
- Educate nurses on the potential errors that may occur if they use a pump that has been left behind.
- Instruct a nurse to explore possible scenarios if they cannot find the correct entry in an infusion pump formulary rather than bypassing the library and administering the drug without the pre-programmed safeguards.
- When using rental pumps, they should arrive to the hospital with a blank library and should be loaded with the hospital-specific library prior to use.
- Standardize smart pump libraries across affiliated hospitals if possible.
- If smart pumps are synchronized with electronic health records (EHR), program the system to make foreign pumps inoperable with the EHR.

References

1. Institute for Safe Medication Practices. (2018). *Nurse Advise-ERR.* Retrieved from Institute for Safe Medication Practices: http://www.ismp.org/newsletters/nursing/issues/NurseAdviseERR201806.pdf