



Depot neuroleptics: Injection sites, techniques and complications

Using the correct site and technique in administering depot neuroleptics is important both to prevent complications and to minimize discomfort to the patient. The table below relates to information found from drug monographs via different sources:

Table 1: Injection site and Technique

	Best site for administration	Maximum ml	Technique	Length of needle and bore size
Fluphenazine	Gluteus maximus or SC. ¹	?	Z-track ²	At least 21G (dry syringe and needles) ¹
Pipotiazine	Deep I.M into large muscle, rotate site and specify in charting. ²	?	Z-track ²	At least 21G (dry syringe and needles) ¹
Flupenthixol	Gluteus maximus ² ; Deep I.M into large muscle, rotate site and specify in charting. ²	First time users – 1 ml ¹ Previously treated – 2 ml	Z-track ²	At least 21G (dry syringe and needles) ²
Zuclopenthixol	Deep I.M into large muscle, rotate site and specify in charting. ²	?	Z-track ²	At least 21G (dry syringe and needles) ²
Haloperidol	Deep I.M into large muscle, rotate site and specify in	Don't exceed 3 ml ³	Z-track ²	At least 21G (dry syringe and

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	charting. ²			needles) 2,3
Risperidone	Deep gluteal injection alternating between 2 buttocks. ^{2,3}	2 ml ¹		As per box

For all the drugs excluding risperidone, don't let the drug stand in syringe for longer than 15 minutes as the plastic may adsorb the drug. Don't massage injection site.²

Site for administration:

According to best practice guidelines, the best site for administration of I.M injection is dorsogluteal. It is advantageous over ventrogluteal as it is easier to identify, there are less chances of needle stick injury and it gives the nurse more personal security i.e. the prone position is safer than lateral especially if the patient becomes agitated or restless. One disadvantage to it is that it can damage the sciatic nerve due to incorrect identification of dorsogluteal area. Thus, ongoing education is needed.⁴

Techniques

Z-track: The skin is drawn away from the site before the needle is inserted. Immediately after the medication is injected and the needle withdrawn, the skin is released. This breaks the needle track into the muscle and has the effect of locking the medication into the muscle depot. Z track administration prevents medication from backing up along the needle track through the tissues.⁴

Air bubble: A small amount of air is drawn up into the syringe before the medication is injected. The needle is inserted directly into the muscle and the medication injected. The air will act as a lock to prevent the medication seeping out along the needle track into other tissue or onto the skin.

For administration of I.M injections with a fast onset, the patient should be in supine position and remain so for about 30 min. It is also advisable to measure blood pressure before I.M injections.²

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Needle selection:

Must be based on BMI and not on the volume of medication to be administered. For overweight patients, use 38mm (21G) instead of 32 mm (23G). It helps to administer into deep muscle tissue.⁴

Maximum quantity of at injections site:

In adults up to 4 ml can be safely injected in to the dorsogluteal site. For younger people or those with less developed or atrophied muscle give lesser amounts⁵.

Complications:

They can occur as; seepage of the injection solution (9/84), bleeding from injection site onto the skin (31/84), irritation, skin lesions, subcutaneous lumps/indurations (11/84), muscle granulomas (2/84), fibrosis at the site of injection, abscess formation and accumulation of oil after repeated large volume injections^{6,7}. One cause might be in I.M administration technique. A prospective study compared the effects of Z-track and air bubble technique on the above complications. It concluded that z-track resulted in more pain and bleeding at the injections site but air bubble technique had less seepage.⁸ However, there were no significant differences between effects of either technique on these complications.⁶

Table 2: Complications of Depot Administration of Neuroleptics

	Skin and local reactions²
Fluphenazine	One case of indurations at high dose, dermatologic reaction reported, pain at site
Pipotiazine	No indurations, dermatological changes reported
Flupenthixol	Indurations rarely seen at high doses, photosensitivity and hyper pigmentation very rare, dermatological reaction seen, pain at site
Zuclopenthixol	No indurations, dermatological reaction reported, pain at site
Risperidone	Pain at injection site, redness/ swelling and indurations < 5%
Haloperidol	Dermatologic reaction, inflammation and nodules with high volumes and doses 100mg/ml, pain at site – lasts for 2 days, no cases of photosensitization reported

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