

A critical discussion of administering medicine by intramuscular (im) injection



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Title: A Critical Discussion of Administering Medicine by Intramuscular (IM) Injection

Introduction

In the United Kingdom nursing practice is bound principally by some guiding precepts and standard which requirements certain practicing ethics for nurses and those who may become a nurse such as student nurses especially within England environ. However, giving intramuscular injection (IM) is part of nursing practice that every trainee student must learn during training. Intramuscular injection (IM) is the safest way and best tolerated form of administering medication on patient (). However, there are some advance aspects of ethical values and legal principles guiding nursing practice, including a framework on how to administer intramuscular (IM) injection (). There are five sites which are currently seen as possible sites to administer intramuscular injection (IM); Deltoid, Dorsogluteal, Ventrogluteal, Rectus femoris and Vastus lateralis (Tortora and Derrickson, 2008). However, the purpose of this assignment, this essay, will critically discussed and debate the available evidence in relation to administering intramuscular injection (IM) and evaluate its potential influence in relation to psychological, social and cultural factors impact, of dorsogluteal (DG) and ventrogluteal (VG) sites. Finally, cultural factors and social potential influence of psychological impact of intramuscular injection (IM) will be evaluated; and conclusion based on how this evidence will impact future nursing career practice and any discovered skill that may enhance future skill development.

Background

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The administration of intramuscular injections (IM), is an important skill in adult nursing and essential in all nursing field. According, to National Institute for Health and Clinical Excellence (NICE) (2006) rapid tranquillisation should be used or applied as a last resort to calm a patient when all intensive nursing and de-escalation techniques have failed. This is to avoid the risk of such patient harming themselves or others. However, it is professionally advisable to first offer oral tranquilisation which will be given with the consent of the patient. If the level of aggression, agitation or excitement by the patient is high then a rapid tranquilliser will be given without prior consent of patient. In addition, Mental Health Act 1983 and the guidance on Consent to Treatment (DH 2002) must be followed. In following this route and achieve necessary result, administration of rapid tranquillisation medication must come through IM injection to quickly help to control severe mental and behavioural episodes of the patient and maintain a state of calmness in the mental state of the patient.

According to Greenway (2006) administration of Intramuscular Injection (IM) are mainly associated with antipsychotic medication which rely mostly in form of depot injections and/or rapid tranquillisation. This is to help manage challenging behaviour and/or mental illness of patient. Greenway predicts a decline in depot administration, as he states only a small number of student nurses are mostly to apply the skill of administering intramuscular injections (IM) after they have qualified as a nurse. As, the role of different aspect of nursing is changing as stated by Nursing and Midwifery Council (NMC) (2004), the administration of IM injections will depend on patient group and nurse practice area. The Nursing and Midwifery Council (2004) recognises

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some key challenges within the practice, which requires nurses to continue to update their individual knowledge and maintain competence and continue to develop skill they need and use infrequently. In addition to this, nurses should develop clinical procedure and maintained evidence based-practice, regardless of how often the skills are applied.

It is evident the vital component of medication management and nursing intervention especially in clinical areas, continue to be administration of IM injections (Hunter 2008), suggests unnecessary complications can be avoided while nurse is applying injection technique skill, which invariably may cause less pain to the patient. The injecting of IM medication can put a patient at risk National Patient Safety Agency (NPSA) (2007) if the procedure is complicated. This may be due to incompetency, lack of adequate training and inconsistent knowledge levels exhibited by nurses are part of highlighted factors that precede to errors mostly made by nurses during administering IM injections.

Dougherty (2008) suggests aseptic technique should be used to inspect the IM injection sites for any deterioration signs of skin to help prevent infection and complications during preparation and administration of IM injection.

Alexander et al (2009) suggests Z tracking technique to be applied, this is the correct way to administer intramuscular injection (IM) in the DG site.

When giving IM injection the thumb should be used or the side of the non-dominant hand can be applied to stretch the skin to help taught it over the site of injection, this will help to maintain the tautness during the procedure (Hunter 2008).

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Then with the darting motion, the needle should be inserted at 90 degrees to the skin, while the 2-3mm of the needle is exposed at the surface and end marks on the syringe barrel must be visible during this process.

The remaining fingers of the non-dominant hand will be used to steady the syringe barrel, while the dominant hand is used to pull back on the plunger to aspirate. However, if blood appears during this process all equipment must be discarded and new procedure should be started again. If there was no blood during the process it is safer to carry on.

When administering IM injection nurses are required to depress the plunger at a rate of 1ml per 10 seconds, this will give the fibres of the muscles time to expand and help accommodate the medication. After the needle is removed 10 seconds after, traction on the skin should be released. It may be necessary to wipe with dry gauze the injection site and a plaster may be applied on the injection site so far, the patient has no known allergy such as to apply iodine, latex or Elastoplast.

However, there are some controversy that surround the injection site area chosen to administer IM injection. The traditional DG site choice by nurses to administer IM injection are associated risks. The DG site which is situated right in the upper outer quadrant of the buttock and sometimes landmarked by a visual quartering the buttock horizontally and vertically, this action can be repeated in the top right-hand square. Small (2004) show the use of DG site for IM injection can result to risk to injury especially to sciatic nerve, including the superior gluteal artery. Zimmerman (2010) suggests this can

cause skin and tissue trauma, nerve palsy, contracture and muscle fibrosis, and paralysis as well as cause infection.

However, in recent times (DuGas & Knor 1995, Perry & Potter 1998) have suggested location of IM injection 5–7.5 cm below the crest of the ilium. The *sciatic nerve* (SN) has always been located at the outer quadrant close to the inner lower angle of the upper. Whilst some authors and practitioners have suggested the upper outer quadrant to be divided into quadrants, so IM injection can be inserted in the upper outer quadrant, where upper outer quadrant is located (Campbell 1995; Kerr & Sirotnik 1997), then isolating injection from the *sciatic nerve* (SN). However, over the years this quadrant technique has come under criticism due to lacking precision (Kozier & Erb 1989; Perry & Potter 1994). Despite this, it is still used and shown in evidence of some IM injection technique practices (Gilsenan 2000; Hemsworth 2000; Baston 2002). Under many of these, alternatives that may involve palpation of the posterior superior iliac spine and more better trochanter of the femur are being suggested (Kozier & Erb 1989; Craven & Hirnle 2003).

Therefore, a student nurse while on training accepts that the VG site is hard to landmark and may suggest reluctance on their part to change a practice they are competent in. Even though as soon as nurses become used to site location of the VG, including the surrounding anatomy, they will start to develop confidence whilst getting used to the site (Greenway 2006).

In contrast to the DG site, the VG site has no major complications associated with the administration of IM injections. There may appear some lack of current evidence for choosing the VG site rather than the DG site for rapid

tranquillisation when or during restraint of a patient. However, due to the nature of this situation especially during applying procedure, safety for every individual during the process must be considered. However, local policies as available should be applied for specific guidance on how patient should safely be positioned and use of specific holds to allow VG site to be landmarked while injection is administered. The VG site can be used if the patient is prone, supine or semi-prone (Greenway 2006). According to Small (2004) damage to the skin may inevitable due to DG sciatic nerve from IM injections. Therefore, it is recommended VG site should be preferred over the use of DG site for IM injection. Zimmerman (2010) agrees to this evidence and strongly advocate for use of VG site for IM injections instead of DG site for more than 1ml in patients starting from or over aged seven months old.

More evidence for choosing the VG site is a study carried out by Nisbet (2006) showing that the subcutaneous fat level of the DG site is significantly higher than that of the VG site. It also showed that penetration of the target muscle at the DG site was only 57 percent meaning the remainder of the injection would deposit into the subcutaneous fat leading to a deficit in the uptake of the drug. Example of study (Zaybak *et al* , 2007) show “90 percent of adult females and 44 percent of adult males had fat deposits in the DG site area that were one inch deeper than the shorter IM needles would reach”. This suggested VG site has a shorter distance and is a safer alternative to administer IM injection (Greenway 2006; Small 2004).

Evaluation

The intramuscular (IM) injection is one of the primary ways to administer medication to the patient. It is usually given to the patient to speed up tranquilliser especially when needed/necessary. This is effective as it works in seconds, hence resulting to quick result in the body. The fast action behind this drug when administered is based on the theory it comes with a very concentrated dose delivered through the muscle, which is essentially given in one or two millilitres dosage. The reason it works fast is because muscles have more blood vessels than subcutaneous tissues. Subcutaneous tissues are fat based under the skin, which passes through the capillary wall and into bloodstream, it shows less the capillaries the slower the rate. Nurses are to carefully check dosage before administering medication through this route and check the patient age and health circumstances. Nurses are to take extra care administering drug via this route, to avoid complications because it circulates quicker to the blood and drug cannot be removed once given.

Proper training is required for the student nurses before they can independently give the IM medication correctly due to the complexity of the procedure. To avoid cross contamination injections, syringe/ needle need to be highly sterile to avoid likelihood of bacteria or virus reaching such places such as central nervous system and cause damage to the entire system.

In summary there are benefits and limitation surrounding the five routes used to administer drug administration and these depended upon several factors as already mentioned/outlined. The insertion of drug has the possibility of having negative effects on patient's body regardless of the part

of the body. The main purpose of intramuscular (IM) injection routes is to deliver drug to the very targeted part of the body.

Conclusions

In conclusion this assignment has explored clinical skill evidence in relation to intramuscular (IM) injection, that every student nurse should have; IM injection is a valuable and necessary skill for all nurses and considered to be a routine procedure. Even though IM injection is being considered a basic skill for nurses, the procedure must be treated with due diligence. To avoid complications nurses must know the anatomy, including advantages and disadvantages of injection sites, and to be able to accurately identify site boundaries and anatomic landmarks. Nurses are to be aware and know the essentials of injection technique, and to administer the injection by carefully applying the technique. Providing safe practice, ensure accurate and therapeutic drug administration are essentials, while nurses need to use their clinical judgement especially when choosing the injection site. It is necessary for nurses to update their skill and knowledge continuously to avoid breaching ethical code of nursing practice. It is negligent to breach code of practice, and may result in harm to the patient, including adverse effect on the nurse's professional career. Some studies on this as shown are up to date or have methodological limitations or both. Therefore, sound and up to date evidence guidelines on clinical practice-based evidence are needed and to followed.

References

- Hunter, J. (2008). Intramuscular injection techniques. *Nursing Standard*, 22 (24).