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DETERMINATION OF OPINIONS OF NURSES WORKING IN A UNIVERSITY HOSPITAL ABOUT INTRAMUSCULAR INJECTION INTO THE VENTROGLUTEAL SITE

BİR ÜNİVERSİTE HASTANESİNDE ÇALIŞAN HEMŞİRELERİN VENTROGLUTEAL BÖLGEYE İNTRAMUSKÜLER ENJEKSİYON İLE İLGİLİ GÖRÜŞLERİNİN BELİRLENMESİ

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ABSTRACT

Objective: This study aims to determine the opinions of nurses working in a university hospital on the injection to intramuscular infection.

Method: This study, which was conducted in descriptive, was composed of 131 voluntary nurses. The forms of "Personal Information Form" and "The Determination of Nurses", "Opinions on the Injection to Intramuscular Site", which were prepared by the researcher based on the literature, were used as data collection tools. Percentage calculations, average measures (minimum, maximum) and chi square ($\chi 2$) cross tables statistics were used in the evaluation of the data.

Results: When the nurses' opinions on the intramuscular injection administration to the ventrogluteal sites were examined; 58.8% of the participants made it easier to determine the region, 67.1% of them thought the ventrogluteal site was safer than the dorsogluteal site, 49.6% of them felt confident while administering the injection to the ventrogluteal site, 34.3% were afraid to administer drugs to the ventrogluteal site and 33.6 % reported that they did not find the drug administration to the ventrogluteal site safe for children, 54.2% of the participants in the study thought the patient would experience more pain in the injection of the ventrogluteal site.

Conclusion: In the light of the findings obtained within this study, it is suggested that the in-service trainings provided by the institutions the nurses worked in should be repeated and the nurses' awareness should be increased by explaining them the reasons for the injections on ventrogluteal site with proofs.

Key Words: Nurses, Intramuscular Injection, Ventrogluteal Site

ÖZ

Amaç: Araştırma bir üniversite hastanesinde çalışan hemşirelerin ventrogluteal bölgeye intramüsküler enjeksiyon kullanımına ilişkin görüşlerini belirlemek amacıyla yapılmıştır.

Yöntem: Tanımlayıcı ve kesitsel tipte yapılan çalışmanın örneklemini çalışmaya katılmaya gönüllü 131 hemşire oluşturdu. Veri toplama aracı olarak, literatür doğrultusunda araştırmacı tarafından hazırlanan "Kişisel Bilgi Formu", "Ventrogluteal Bölgeye İntramüsküler Enjeksiyona Yönelik Bilgi, Etkileyici Faktörler Formu" ve "Hemşirelerin Ventrogluteal Alana Enjeksiyon Uygulamaya İlişkin Görüşlerinin Belirlenmesi" formları kullanıldı. Verilerin değerlendirilmesinde SPSS programında ki kare ($\chi 2$) çapraz tabloları ve fisher exact test istatistiği kullanıldı.

Bulgular: Hemşirelerin ventrogluteal bölgeye intramüsküler enjeksiyon uygulamasına ilişkin görüşleri incelendiğinde; katılımcıların %58,8'i bölgeyi belirlemeyi kolaylaştırdığını, %67,1'i ventrogluteal bölgenin dorsogluteal bölgeden daha güvenli olduğunu düşündüğünü, %49,6'sı ventrogluteal bölgeye enjeksiyon yaparken kendinden emin hissettiğini, %34,3'ü ventrogluteal bölgeye ilaç uygulamaktan korktuğunu, %33.6'sı ventrogluteal bölgeye ilaç uygulamasını çocuklar için güvenli bulmadığını belirtirken, araştırmaya katılanların %54.2'si ventrogluteal bölgeye yapılan enjeksiyonda hastanın daha fazla ağrı yaşayacağını düşündüğünü bildirdi.

Sonuç: Araştırmadan elde edilen sonuçlar doğrultusunda, hemşirelerin hizmet vermeye başladığı kurum tarafından hizmet içi eğitimlerin tekrarlanması, ventro gluteal bölgeye enjeksiyon uygulama nedenleri, kanıtları ile açıklanarak farkındalıklarını arttırmaları önerildi.

Anahtar Kelimeler: Hemşire, İntramüsküler Enjeksiyon, Ventrogluteal Enjeksiyon

INTRODUCTION

The administration of the medicine, which is one of the treatment stages, to the patient properly and technically is one of the basic elements of the nursing profession [1,2]. It is one of the important roles of the nurse to prepare patients for healthcare services, to monitor their effects and side effects and to educate patients and their relatives about the medicines [2]. Pharmacological agents can be can be given to the patient in many ways, including oral, parenteral or topical. Parenteral use means that the medicine is given directly to the appropriate areas instead of acting on the digestive system as in the oral route. Parenteral drug administration can be intramuscular (IM), subcutaneous (SC), intravenous (IV) or intradermal (ID). Intramuscular injection, which is the process of injecting the drug into deep muscle tissue, is applied more than 12 billion times annually in

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the world [3,4]. If IM injection is not made correctly and reliably; it can lead to many complications as in the other administrations [5].

Over time, various techniques of this practice have emerged due to the fact that nursing education has a certain standard and the studies on the necessity of the intramuscular administration in the least harm and maximum benefit framework has increased. Today, it has been reported that the most commonly used region is dorsogluteal site for intramuscular drug administrations with (48.2%) (4). However, the side effects of dorsogluteal site in terms of sciatic nerve and superior gluteal artery injury are quite high [6]. Intramuscular injection is an invasive procedure and it is an administration that nurses do by knowing the certain risks each time. Considering these risks, researches on the alternative anatomical localizations have been carried out since the early 1950s [7]. In this respect, "ventrogluteal site" become prominent nowadays in terms of both the position of the patient and the confidence of the nurse during the administration. Ventrogluteal site technically can be applied onto the side of the hip. The site of injection is determined by palping the bone structure [8]. In this region, subcutaneous fat tissue is less. Certain anatomical spots are accepted as landmarks. It can be applied in supine, prone and the most frequently in the lateral position. This region is quite far from the sciatic nerve; gluteal muscle tissue is as thick in this region as in the dorsogluteal site. However, it is not suitable for the administrations under 7 years old and in cachectic patients [9].

In their studies, Tuğrul and Denat (2004) reported that the ventrogluteal site should be prioritized as a preference in health education [4]. The use of this region, which is apparently quite simple and basically as safe as possible, has now begun to take part in nursing education and comes to the agenda as an alternative to the classical practice preference. However, the reason why health professionals prefer the dorsogluteal site in the intramuscular drug administration process might be based on the idea of not going beyond the routine. Though, in procedures performed using the dorsogluteal site, the risk of developing sciatic nerve injury, abscess or hematoma and skin infections is higher [10].

Intramuscular injections to be administered to the ventrogluteal site cause fewer complications considering the anatomical structure of the area. It has been reported that only complications related to the drug build up in the administrations to this site, but this technique is less preferred against the routine dorsogluteal administration [11]. In a study, it was stated that the ventrogluteal site can be used safely in normal and lightweight individuals in injection administrations [9]. The subcutaneous fat tissue of the ventrogluteal site is thinner than the dorsogluteal site and the muscle tissue is thicker than the dorsogluteal site. As a result, it reduces the possibility of the injection administration to subcutaneous tissue by mistake [12-14].

At this point, it is necessary to provide nurses with repetitive in-service trainings and increase the number of ventrogluteal academic research in order to extend the intramuscular drug administration technique to the ventrogluteal site. In our research, it is considered to be a starting point of a road map to be drawn in this sense in the Turkish Republic of Northern Cyprus (TRNC) with the aim of determining opinions of the nurses about the intramuscular injection to the ventrogluteal site.

METHOD

Purpose of the Research

This quantitative and descriptive study was conducted at the Near East University Hospital in the Turkish Republic of Northern Cyprus to determine the predicted views of nurses for intramuscular injection for ventrogluteal applications.

Population and Sample of the Research

The population of the research consists of 160 nurses working in this university hospital in between December 2017-March 2019. In this research, there was no sample selection with the purpose of reaching the entire population and 131 nurses who agreed to participate in the study constituted the sample of the study. The data of the research was collected by the researcher face-to-face in the working environment of the nurses. The average answering time of the data collection form was 10-15 minutes.

Research Questions

1. Is the knowledge opinion the nurses participating in the study about the VG injection area sufficient in IM injection practices?

2. Do the socio-demographic characteristics of the nurses participating in the research affect their opinion knowledge?

Data Collection Tools

The data collection form was prepared by the researcher according to the literature [15-17]. The data collection form consisted of three sections. In the first section; there were four questions for the descriptive characteristics of the nurses. In the second section; 13 questions about ventrogluteal site region and in the third section, there were 17 questions for the determination of the nurses' opinions on administering intramuscular injection to the ventrogluteal site. In evaluating the scope validity of 17 questions regarding the determination of their views on the application of intramuscular injection to the ventrogluteal site, four of them were received from five faculty members, one of whom is expert in the field of nursing fundamentals, one in the field of measurement and evaluation. Necessary changes were made in the data collection form in line with the opinions of the experts.

The preliminary application of the data collection form was carried out with 20 nurses working in a hospital in the TRNC, which is not included in the sample group and who agreed to participate in the practice. As a result of the pre-application, necessary corrections were made in the data collection form.

Data Collection

The nurses were explained about the research and their written consents were obtained. The questionnaires were given to the nurses one by one and in terms of the reliability of the research results, the response time was waited until the end and the questionnaire was taken back immediately. During the application of the questionnaire, the nurse was prevented from getting information and opinions from literature or a colleague. It took 10-15 minutes to fill out the questionnaire.

Statistical Analysis

The statistical analysis was done by using SPSS (IBM SPSS Statistics 20) packaged software.

The frequency tables and descriptive statistics were used for the interpretation of the findings. The dependent variable of the research is the views of the information about the ventrogluteal site region and the independent variable is the nurses' gender, age, education and clinical practice. Percentage calculation and average measures (minimum, maximum) were used to evaluate the data. "X^2" cross tables were used in the analysis of the relationship between the two qualitative variables according to the expected value levels. For statistical significance, $p<0.05$ was taken in the tests.

Ethical Considerations

The ethical committee permission was taken from the Near East University Scientific Researches Ethical Committee before the research started (ethical committee no: 2017/16-1170). The purpose of the research was explained to the nurses participating in the research and it was stated that the participation is voluntary. In the consent form, it was stated that the data given would be kept confidential, the obtained information would be used for scientific research and the information such as name, surname was not absolutely needed.

RESULTS

The average age of the nurses participating in the study was stated as 27.71±5.06 (year). 37.4% of the nurses were 25 years or under and 87.8% of them were female. 81.7% of the participants had a bachelor's degree, 40.4% of them had an employment time between 1-3 years and 41.3% worked in inpatient floor (Table 1).

Table 1. The descriptive characteristics of the nurses

Variables		n	%
Age	≤25 years	49	37.4
	26-29 years	49	37.4
	≥30 years	33	25.2
Gender	Female	115	87.8
	Male	16	12.2
Educational status	Associate's degree	13	9.9
	Bachelor degree	107	81.7
	Masters/Doctorate degree	11	8.4
Years of employment	<1 year	25	19.1
	1-3 years	53	40.4
	4-6 years	30	22.9
	≥7 years	23	17.6
Working unit	Inpatient floor	54	41.3
	Intensive care	26	19.8
	Emergency	18	13.7
	Outpatient clinic	23	17.6
	Operating room	10	7.6

It was determined that 71.8% of the participants had in-service training for drug administration before starting work and 84% received general in-service training after starting work. It was determined that 71% of the nurses were most frequently preferred the dorsogluteal site for IM. It was determined that 47.3% of the nurses participating in the study preferred the ventrogluteal site for IM and 54.8% of them preferred this site because it was safer. It was determined that 52.2% of the nurses did not prefer the ventrogluteal site for IM because they thought the dorsogluteal site was safer (Table 2).

When the nurses' opinions on the intramuscular injection administration to the ventrogluteal sites were examined; 58.8% of the participants made it easier to determine the region, 67.1% of them thought the ventrogluteal site was safer than the dorsogluteal site, 49.6% of them felt confident while administering the injection to the ventrogluteal site, 34.3% were afraid to administer drugs to the ventrogluteal site and % 33.6 reported that they did not find the drug administration to the ventrogluteal site safe for children. 54.2% of the participants in the study thought the patient would experience more pain in the injection of the ventrogluteal site, 64.9% of them thought the ventrogluteal injection complications were higher, 55.8% of them thought the patients would not allow ventrogluteal injection and 39.7% of them stated that the complications built up during the injections to the ventrogluteal site were the same during the injections to the dorsogluteal site. 50.4% of the participants had concerns because they had never administer injections to the ventrogluteal site, 64.9% of them found it difficult to position the patient during the drug administration to the ventrogluteal region, 63.3% of them thought the ventrogluteal site was weak for the drug administration, 60.3% of them were afraid that the tip of the needle would coincide with the bone, 71.0% of them were afraid to administer to the wrong place in overweight patients, 57.3% were afraid to administer to the wrong place in slim patients and 43.6% of them reported that the patient was more uncomfortable during the drug administration (Table 3).

Table 2. Distribution of properties of the nurses regarding the intramuscular injection to the ventrogluteal site

Variable (n=131)	n	%
In-Service Training for Drug Administration Before Starting Work		
Yes	94	71.8
No	37	28.2
In-Service Training for Drug Administration After Starting Work		
Yes	105	84.0
No	26	16.0
The Most Frequently Chosen Site for IM		
Deltoid muscle	2	1.5
Dorsogluteal site	93	71.0
Ventrogluteal site	36	27.5
Choosing Ventrogluteal Site for IM		
Yes	62	47.3
No	69	52.7
The Reason for Choosing Ventrogluteal Site for IM		
It is a safer site	34	54.8
Easy to identify	15	24.2
Less risk of building complications	13	21.0
The reason for not choosing ventrogluteal site for IM		
Dorsogluteal site is safer	36	52.2
Having hardships in the identification of ventrogluteal site	18	26.1
Building complications in ventrogluteal site	3	4.3
Others	12	17.4

An evaluation consisting of 17 items was used to determine the opinions of the participants regarding the intramuscular injection application to the ventrogluteal site (Table 3).

In this table, a comparison of the views of the nurses regarding the use of the ventrogluteal site was made according to some of the introductory characteristics (age, gender, occupational durations). All items were compared but no statistically significant results were found in the values not included in the table.

Participants' age groups were compared with the view that "I am afraid to use drugs in the wrong place in the weak" and there was a statistical difference between the two variables=9.633, $p<0.05$. 45.2% of women and 31.2% of men replied "no" to the view that "I think the patient is more disturbed during drug administration" with gender. In the comparison between the two values, there is a statistical difference/ relationship between the variables ($p<0.05$).

Vocational time and variables "I think the patient is more uncomfortable during drug administration" and the duration of occupation and "I do not find it safe to apply Ventrogluteal drug administration to children" were compared and there was no statistical relationship between these variables ($p>0.05$).

There was no relationship between these two variables in the evaluation made between age groups and "I do not find Ventrogluteal drug administration safe" ($p>0.05$) (Table 4).

Table 3. Distribution of the findings regarding the determination of the opinions of the participants about the intramuscular injection administration to the ventrogluteal site

Question (n=131)	Yes (n, %)	No (n, %)	Partially (n, %)	I don't have an idea (n, %)
1. I make the determination of the ventrogluteal site more easily.	77, (%58.8)	24, (%18.3)	29, (%22.1)	1, (%0.8)
2. I think ventrogluteal site is safer than dorsogluteal site.	88, (%67.1)	23, (%17.6)	19, (%14.5)	1, (%0.8)
3. I think the patients will feel more pain in the injection to ventrogluteal site.	40, (%30.5)	71, (%54.2)	16, (%12.2)	4, (%3.1)
4. The complications of ventrogluteal injection is higher.	19, (%14.5)	85, (%64.9)	24, (%18.3)	3, (%2.3)
5. I think the patients will not allow ventrogluteal injection.	18, (%13.7)	74, (%55.8)	26, (%19.8)	14, (%10.7)
6. The complications built up during the injections to the ventrogluteal site are the same during the injections to the dorsogluteal site.	49, (%37.4)	52, (%39.7)	22, (%16.8)	8, (%6.1)
7. I have concerns because I have never used ventrogluteal site in drug administrations.	40, (%30.5)	66, (%50.4)	23, (%17.6)	2, (%1.5)
8. I feel confident while I am making injections to the ventrogluteal site.	65, (%49.6)	44, (%33.6)	16, (%12.2)	6, (%4.6)
9. I think it is harder to position the patient during the drug administration to the ventrogluteal site.	25, (%19.1)	85, (%64.9)	18, (%13.7)	3, (%2.3)
10. I think the ventrogluteal site is not anatomically suitable for the drug administration.	28, (%21.4)	83, (%63.3)	19, (%14.5)	1, (%0.8)
11. I think the muscle structure of ventrogluteal site is weak the drug administration.	37, (%28.2)	76, (%58.0)	17, (%13.0)	1, (%0.8)
12. I am afraid that the tip of the needle will coincide with the bone.	29, (%22.1)	79, (%60.3)	22, (%16.8)	1, (%0.8)
13. I am afraid to administer to the wrong site in the overweight patients.	25, (%19.0)	93, (%71.0)	12, (%9.2)	1, (%0.8)
14. I am afraid to administer to the wrong site in the slim patients.	35, (%26.7)	75, (%57.3)	21, (%16.0)	-
15. I think the patient feel more uncomfortable during the drug administration.	45, (%34.3)	5,7 (%43.6)	29, (%22.1)	-
16. I am afraid to do Ventrogluteal drug administration to children.	45, (%34.3)	42, (%32.1)	37, (%28.2)	7, (%5.4)
17. I do not find safe to do Ventrogluteal drug administration to children.	44, (%33.6)	35, (%26.7)	37, (%28.2)	15, (%11.5)

Table 4. Comparison of the nurses' views on the use of the ventrogluteal site according to some introductory features

Variable (n=131)		Yes		Partially		No		χ^2	p
		n	%	n	%	n	%		
"I am afraid to apply the drug in the wrong place in the weak" with the age group	≤25 age	15	30.7	11	22.4	23	46.9	9.633	0.047
	26-29 age	16	32.7	7	14.2	26	53.1		
	≥30 age	4	12.1	3	9.1	26	78.8		
"I think the patient is more disturbed during drug administration" by gender	Woman	42	36.5	21	18.3	52	45.2	8.313	0.016
	Man	3	18.8	8	50.0	5	31.2		
With the duration of the profession "I think that the patient is	<1 year	4	16.0	7	28.0	14	56.0	6.121	0.410
	1-3 year	23	43.4	11	20.8	19	35.8		
	4-6 year	10	33.3	7	23.4	13	43.3		
	≥7 year	8	34.8	4	17.4	11	47.8		

Variable (n=131)		Yes		I do not know		Partially		No		χ^2	p
		n	%	n	%	n	%	n	%		
"I do not find it safe to apply Ventrogluteal medication to children" with the duration of their profession	<1 year	9	36.0	3	12.0	6	24.0	7	28.0	5.965	0.743
	1-3 year	21	39.6	4	7.5	12	22.6	16	30.3		
	4-6 year	8	26.7	4	13.3	12	40.0	6	20.0		
	≥7 year	6	26.1	4	17.4	7	30.4	6	26.1		
"I do not find Ventrogluteal drug application safe with age group"	≤25 age	17	31.6	7	15.4	12	25.5	23	27.5	9.529	0.146
	26-29 age	18	34.7	1	2.0	14	21.6	16	31.7		
	≥30 age	9	14.1	7	24.2	11	40.3	6	21.4		

DISCUSSION

The administration of the drug, which is one of the treatment stages, to the patient properly and technically is one of the basic elements of the nursing profession [18]. In the institutions where health services are provided, the safe administration and preparation of drugs and the training of patients and their relatives about drugs are among the important roles of a nurse [19].

Three fourths (71%) of the nurses participating in the research preferred dorsogluteal site whereas one out of every four nurses (27.5%) preferred ventrogluteal site. In a similar study conducted by Walsh and Brophy (2010), it was stated that 71% of the nurses preferred dorsogluteal site. In the study of De Godoy et. al., the nurses reported dorsogluteal (65.6%) and Deltoid muscle (31.2%) as the most frequently used sites for IM administrations [20]. The most commonly used site for IM injections by the nurses was stated as dorsogluteal site in the study of Artoli et.al., [21]. In the study of Gülnar and Çalışkan, which was conducted with the participation of 283 nurses and where the participants' knowledge levels related with IM injections to ventrogluteal site was evaluated, the 85.9% of the participants denoted their use of dorsogluteal site [15]. The study showed similar results with the literature. The percentages of the ones choosing dorsogluteal site was higher both in the literature and in our study. Explaining the dorsogluteal sites together with the ventrogluteal site in in-service trainings, not knowing the benefits of the ventrogluteal site and not being aware of the complications of the dorsogluteal site by the nurses was thought to be among the reasons for this.

54.8%, 24.2% and 21% of the nurses participating in the research reported that they preferred ventrogluteal site for being safer, easy to identify and causing less complications, respectively. 52.2% of ones who did not prefer ventrogluteal site found dorsogluteal site safer. In the study Enstrom et. al., conducted in 2000, it was determined that they preferred dorsogluteal site due to its being safer [22]. The study of Gülnar et. al., reported that 83.7% of the nurses chose ventrogluteal site for its being safer [15]. Hunter (2008) evaluated the proper administration and techniques which is a stage of IM injection treatment stages and concluded that ventrogluteal site to be safer considering in many aspects including anatomic localization and the process of application [7]. The findings of the study demonstrated similar results with the literature.

The opinions of participants related with ventrogluteal site infections were evaluated. According to this evaluation, 58.8% of them reported that they did ventrogluteal site identification easily and 67.1% of them denoted that they thought dorsogluteal site was safer. In the study of İsmail et. al., about the safe injection that performed with 1100 healthcare workers in 2007, the nurses stated ventrogluteal site as a small surface and hardly detectable site although it was anatomically safe, and therefore, they preferred ventrogluteal site injections less [23].

In the research conducted by Gülnar and Çalışkan, 34% of the participants stated that they did not administer to ventrogluteal site because they did not know the correct region and 3.3% of them, they did not administer to ventrogluteal site because they could not determine the correct region [15]. In the study of İsmail et. al., (2007) about the safe injection, the nurses stated ventrogluteal site as a small surface and hardly detectable site although it was anatomically safe and therefore, they preferred ventrogluteal site injections less [23]. In the research carried out by Tuğrul and Denat, nurses expressed that their knowledge about the injections to ventrogluteal site was insufficient [4]. When all these results were evaluated, the fact that nurses preferred ventrogluteal site less and less and even never, leads to a lack of knowledge and decrease in the number of administrations. Although the percentages obtained in the research were changed compared to the literature, it is believed that the knowledge of the nurses about the ventrogluteal site decreased in general after graduation, leading to a decrease in the number of procedures.

Limitations of the Research

The fact that the research was carried out only on nurses working in a university hospital in the Turkish Republic of Northern Cyprus is the limitation of the research.

CONCLUSION

Consequently, the lack of information on this site from nurses hearing, evaluating and being a familiar area. It was determined that nurses did not use the ventrogluteal site. It is important for nurses to gain knowledge and skills in this course for safe injection practice. Also, ventrogluteal, which is considered a painless and safe injection site, patient comfort will also be increased. In this direction, both undergraduate education and in-service training are recommended. The utilization of effective training methods that help to increase the nurses' level of awareness about the benefits of ventrogluteal site and the harms of dorsogluteal site during their education process and after they start working and the increase of scientific research in TRNC that contribute to explain the use of ventrogluteal site with reasons and proofs. Regular in-service trainings before and after the nurses start working and tracking them by the institutions are suggested.

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