



“A STUDY TO ASSESS EFFECTIVENESS OF MOIST HEAT THERAPY ON THE VISIBILITY AND PALPABILITY OF PERIPHERAL VEINS BEFORE PERIPHERAL VENOUS CANNULATION AMONG PATIENTS UNDERGOING INTRAVENOUS CANNULATION IN SELECTED HOSPITAL OF SOUTH GUJARAT”

Nursing

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ABSTRACT

Background: Over a billion peripheral intravenous catheters are inserted each year in hospitalized patients worldwide. Intravenous therapy may be used to correct electrolyte imbalances, to deliver medications, for blood transfusion, fluid replacement to correct dehydration and it can be used for chemotherapy patients. The rate of phlebitis increases with the time that the cannula remains in place, and, for this reason, it is currently recommended those intravenous cannulas are routinely changed after 48–72 hours. Heat application decreases the likelihood of multiple intravenous insertion attempts and procedure time and it is comfortable, safe and economical to use in patient and it does not cause any harm to the patient. Application of heat at the intravenous insertion site has been shown to increase the vein visualization. **Method:** Quasi-experimental study (nonrandomized control) design used to study the effect of moist heat therapy on the visibility and palpability of peripheral vein. Moist heat given with gauze pack dipped in warm water for 10 minute on IV cannulation sites. 60 samples were selected with nonprobability purposive technique, 30 sample in each control and experimental group from selected hospital of south Gujarat. **Result:** In the present study post-test mean and SD of VAS score was higher in experimental group than the control group that is (4.1 ± 1.02) and (3.16 ± 1.28) which is significant at the level of $p \leq (0.05)$ level. In control group VAS highest score in pre-test score 1 (neither visible not palpable) 10 (33.33%) and in post-test VAS score 2 (barely visible and palpable) was 15 (50%). And in experimental group pre-test VAS 3 (barely visible and palpable) is 10 (33.33%) and post-test VAS 5 is 14 (46.66%) sample. **Conclusion:** Application of moist heat at the intravenous insertion site has been shown to increase the vein visibility and palpability.

KEYWORDS

effectiveness, moist heat therapy, palpability and visibility of peripheral veins, intravenous cannulation

INTRODUCTION:

Many patients admitted in the hospital undergo cannulation. Intravenous cannulation is done on casualty, ICU or in the wards according to the need of the patient. Intravenous cannulation used for Intravenous therapy for patients, for some patients it may be a means to rehydrate patient; for others it may be a way to administer antibiotics. Intravenous cannulation is a technique to place a cannula/ catheter inside a vein to provide access. Venous access allows sampling of blood as well as administration of fluids, medications, parenteral nutrition, chemotherapy and blood and blood products. This route of drug administration is less traumatic than intramuscular and subcutaneous drug administration if a peripheral line is well established. Peripheral intravenous cannulation is frequently or commonly used invasive procedure to administer any fluids or drugs. An insertion is technically easy but causes distress or pain to the patients.¹

Application of heat increases in cutaneous blood flow is attributed initially to withdraw of sympathetic vasoconstrictor activity and increases in sympathetic vasodilator activity. Heat applications have four main effects on body tissues including pain relief, muscle relaxation, blood vessel dilatation and connective tissue relaxation. The dilatation of the blood vessels leads to the increase in the blood flow to the body. The study attempts to provide information about the effect of moist heat therapy on the visibility and palpability of peripheral veins. Using purposive sampling technique, 60 subjects were selected who were scheduled for IV cannulation for the purpose of chemotherapy administration and whose veins were not visible and palpable. Moist heat was applied at the forearm, hands and wrist for 10 minutes prior to IV cannulation. Following the intervention vein assessment was done by using Vein Assessment Scale. Permission to conduct the study was sought from Ethics Review Committee of the institute.²

Margita Svensson (2016) et,al, explained, Insertion of intravenous cannulas (IVCs) is one of the most commonly used invasive procedures in healthcare and can be perceived as very painful by the patient. The aim of this study was to evaluate whether venous dilatation produced by local warming (LW) reduces pain on peripheral IVC insertion. The study with a sample size of 125 patients was undertaken in a day care unit. Patients were randomized to an experimental group (n = 61) or a control group (n = 64). The experimental group received LW during 60 seconds before cannula insertion. Local application before the catheterization procedure particularly increased visibility and palpability of the peripheral vein.³

Makafi SA (2017) et,al in their study suggested, Peripheral intravenous catheterization is a common invasive nursing procedure

performed in healthcare institutions The study is a descriptive type of research since it mainly deals with identifying the incident rate of phlebitis, infiltration, extravasation and hematoma and its underlying causes. Study was conducted in one of the Ministry of Health hospitals in Jazan, Saudi Arabia. A total of 406 patients, with 458 peripheral cannula were assessed. The study is quantitative type of research. The findings show that the rate of phlebitis, infiltration, extravasation and hematoma are 21, 7, 3.5, 12 percent respectively. Conclusions: There was high incidence of intravenous cannula related complications in the hospital which needs to be reduced or completely eradicated in order to improve overall patient's health outcome.⁴

Kiger (2014), et al explained, Health care workers at an academic medical center in the Midwest were surveyed to identify common practices regarding heat use during peripheral intravenous (PIV) catheter insertion.” Heat use during peripheral intravenous (PIV) catheter insertion of the 907 who responded, the majority used heat to facilitate PIV insertion at least sometimes, when veins were not easily seen or not palpable, applying a commercial dry hot pack for 2 to 5 minutes before selecting an insertion site. Heat use correlated with practice role and population, frequency of PIV insertion, and perceived PIV skill. Findings will guide development of a research protocol to compare the effects of dry heat, moist heat, and no heat on PIV insertion success.⁵

Maninderdeep Kaur (2011) et, al, conducted study on Effect of 'Moist Heat Therapy' on the visibility and palpability. Using purposive sampling technique, 60 subjects were selected who were scheduled for IV cannulation for the purpose of chemotherapy administration and whose veins were not visible and palpable. Moist heat was applied at the forearm, hands and wrist for 10 minutes prior to IV cannulation. Mean duration of getting chemotherapy treatment was 4.07 ± 3.86 months with range of 1 to 24 months. 40% subjects had clearly visible and palpable veins after the intervention. Intervention was significantly more effective in the patients with shorter duration of chemotherapy ($p < 0.05$).⁶

Yamagami (2017), et al, conducted, A prospective, observational study. In total, 40 healthy female volunteers aged 20–45 years were recruited Participants received 15min of local warming with a warmed heat pack ($40 \pm 2^\circ\text{C}$). The primary outcome was the cross-sectional area of the target vein at 5, 10, and 15min of warming, which was measured after the intervention by blinded review using ultrasound. Secondary outcomes included forearm target site temperature at 5, 10, and 15min of local warming, which was measured with a temperature sensor and handheld thermometer. Compared to outcomes before local warming, vein cross-sectional area at 5, 10, and 15min of warming significantly

($p < 0.001$) increased by 2.8, 2.9, and 2.3mm. However, no significant differences were found in cross-sectional area among the time points of 5, 10, and 15min of local warming. The target site temperature at 15min of local warming was significantly ($p < 0.001$) different than that at 5 and 10min. No adverse events occurred with local warming. Compared with outcomes before local warming, vein size after warming for 5, 10, and 15min was significantly larger.⁷

Amardeep Singh (2018), et al, explained in their study, on effectiveness of moist heat therapy on visibility, palpability, pricks and pain experienced while undergoing peripheral intravenous cannulation of patient. A Quasi experimental study was used and 100 patients were selected. The results reveals that the effectiveness of moist heat therapy on visibility and palpability of veins in experimental group with pretest mean and SD were 1.640 ± 0.598 and post test mean and SD were 3.500 ± 1.035 which was found to be significant at $p \leq 0.01$ level of significance. The study concludes that the moist heat therapy was effective in improving the visibility and palpability of veins, reducing the number of attempts taken to insert IV cannula and reduce the pain while undergoing peripheral intravenous cannulation.⁸

Objectives Of The Study

1. To assess the visibility and palpability of peripheral veins before and after application of moist heat therapy among patient undergoing intravenous cannulation.
2. To find out the association between the post-test score visibility and palpability of peripheral veins among patients with intravenous cannulation with their selected demographic variables.

HYPOTHESIS

- H₁:** There will be a significant difference between the mean pre-test and post-test Vein Assessment Score among patient undergoing moist heat therapy before intravenous cannulation.
- H₂:** There will be a significant association between the post-test visibility and palpability score with their selected demographic variables.

MATERIALS AND METHODS

Research Approach: Quantitative research approach

Research Design: Quasi-experimental, nonrandomized control group design.

Symbolic Representation of A Quasi Experimental Research Design

The main focus of the study was to assess effectiveness of moist heat therapy before the peripheral cannulation among the patient through pre-test and post-test VAS score depicted as O₁ and O₂ respectively.

Table 1: The schematic representation of research study design used by the investigator is given below.

SR. NO.	GROUP	PRETEST	INTERVENTION	POST TEST
1	Experimental Group	O ₁	X	O ₂
2	Control Group	O ₁	-	O ₂

(O₁): Pre-test assessment of the vein visibility and palpability by using vein assessment scale (VAS)

(X): Administration of the moist heat therapy for 10 minute on IV cannulation site.

(O₂): Post-test assessment of the vein visibility and palpability by using the VAS.

(-): No administration of moist heat therapy.

Setting Of The Study : Study was conducted in the New civil hospital, Surat.

Population : The population criteria establish the target population or an accessible population i.e patients willing to participate in the study.

Sample Size: The sample size was 60 samples

Sampling Technique: Non probability sampling

Criteria For Sample Selection:

Criteria for sample selection were based on cost, practical concern,

design and the people's ability to participate in the study. The study had two criteria namely inclusion and exclusion criteria.

Inclusion Criteria

Participants who are:

- Patient willing for intravenous cannulation.
- Patients who are undergoing intravenous cannulation.
- Patients with age between 21 year and 60 year.
- Both the male and female patients.

Exclusion Criteria

Exclusion criteria help to identify suitable participants.

- Patient who have been previously sensitized with same or similar intervention.
- Patient who are undergoing central venous cannulation.
- Patient who are critically ill such as coma, stroke and patient on ventilator.
- Patient who not willing for intravenous cannulation
- Patient with age below 21 year and above 60 year.
- Patient weight more than 100 kg and less than 20 kg.

Delimitation

The study is limited to,

- The sample size is limited to 60 patients.
- The patient who are not willing for IV cannulation.
- The study is limited to selected hospitals of South Gujarat.

Data Collection Tool / Instrument

Data collection instrument used were:

- Demographic data
- Vein assessment Scale

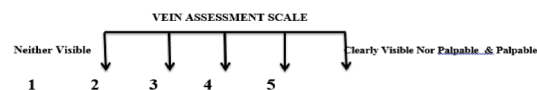
Description of tool:

Section 1: Demographic Data

Demographic data consist of patients includes age, sex, occupation, weight, blood pressure, site of IV cannulation, habit of patient, history of complication associated with vascular access.

Section 2: Vein Assessment Scale

A Vein Assessment Scale (Lenhardt 2002) a standardized 5 point rating scale used to assess the visibility and palpability of peripheral veins before and after the application of moist heat therapy.



Scores:

- 1 – Vein neither visible nor palpable
- 2 - Vein visible but not palpable
- 3 - Vein is barely visible and palpable
- 4 - Vein is visible and palpable
- 5 - Vein is clearly visible and palpable

Section-I: Demographic Data

Table 2: frequency and percentage distribution of demographic variable of patient from new civil hospital, Surat in control group. N=30

SR.NO.	DEMOGRAPHIC DATA	FREQUENCY (f)	PERCENTAGE (%)
1.	Age :-		
	a) 21-30 year	5	16.66
	b) 31-40 year	8	26.66
	c) 41-50 year	9	30
	d) 51-60 year	8	26.66
2.	Gender :-		
	a) Male	17	56.66
	b) Female	13	43.33
	c) Trans gender	0	0
3.	Occupation :-		
	a) Worker	18	60
	b) non-worker	12	40
4.	Weight :-		
	a) 21-40 kg	7	23.33
	b) 41-60 kg	7	23.33
	c) 61-80 kg	9	30
	d) 81-100 kg	7	23.33

5.	Blood pressure		
	a) Normal	11	36.66
	b) Hypertension	10	33.33
	c) Hypotension	9	30
6.	Site of IV cannulation		
	a) Basilica vein	5	16.66
	b) Cephalic vein	14	46.66
	c) Median vein forearm	8	26.66
	d) Medial cubital vein	3	10
7.	Habit of patient		
	a) Alcohol	5	16.66
	b) Smoking	5	16.66
	c) No toxic habit	13	43.33
	d) a & b both	7	23.33
8.	History of complication associated with vascular assess:-		
	a) Phlebitis	4	13.33
	b) Thrombosis	5	16.66
	c) Infiltration	4	26.66
	d) No any complication	17	56.66

The conclusion was investigator found in control group the majority of sample 9 (30%) age group between 31-40 year. Majority of patient is 17 (53.33%) is male. Were as worker and non-worker that is 18 (60%) and 12 (40%). Majority 9 (30%) are having weight 61-80 kg and 11 (33.33%) are having normal blood pressure. Almost half of patient having IV site cephalic vein 14 (46.66%). Majority patient having the no toxic habit 13 (43.33%), were 17 (56.66%) is no any complication in history of complication associated with vascular access.

Table 3: frequency and percentage distribution of demographic variable of patient from new civil hospital, Surat in experimental group. N = 30

SR.NO	DEMOGRAPHIC DATA	FREQUENCY (f)	PERCENTAGE (%)
1.	Age :-		
	a) 21-30 year	7	23.33
	b) 31-40 year	6	20
	c) 41-50 year	9	30
	d) 51-60 year	8	26.66
2.	Gender :-		
	a) Male	17	56.66
	b) Female	13	43.33
	c) Trans gender	0	0
3.	Occupation :-		
	a) Worker	20	66.66
	b) non-worker	10	43.33
4.	Weight :-		
	a) 21-40 kg	8	26.66
	b) 41-60 kg	8	26.66
	c) 61-80 kg	7	23.33
	d) 81-100 kg	7	23.33
5.	Blood pressure		
	a) Normal	14	46.66
	b) Hypertension	10	33.33
	c) Hypotension	6	20
6.	Site of IV cannulation		
	a) Basilica vein	8	26.66
	b) Cephalic vein	11	36.66
	c) Median vein forearm	5	16.66
	d) Medial cubital vein	6	20
7.	Habit of patient		
	a) Alcohol	6	20
	b) Smoking	5	16.66
	c) No toxic habit	14	46.66
	d) a & b both	5	16.66
8.	History of complication associated with vascular assess:-		
	a) Phlebitis	4	13.33
	b) Thrombosis	8	26.66
	c) Infiltration	5	26.66
	d) No any complication	13	43.33

The conclusion was investigators found in experimental group the majority of sample by 9 (30%) age group is 41-50 year, distribution of sample according to gender is (17 male, 13 female). Majority of having the worker 20 (66.66%), were 8 (26.66%) are having weight same for two groups 21-40 kg 41-60 kg. majority of having normal blood pressure 14 (46.66%). Site of IV cannulation have almost half of sample 11 (36.66%) and half of patient having the no toxic habit 14 (46.66%). Majority of having no any complication 13 (43.33%) are history of complication associated with vascular access.

SECTION - II: Comparison of Vein Assessment Scale pre-test and post-test of the patient in new civil hospital, surat.

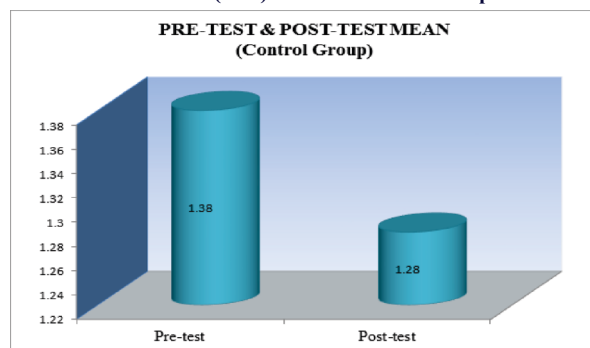
Table 4: Comparison of the pre-test and post-test vein assessment scale (VAS) in control group. N = 30

Score	Peripheral Veins Status	Pre-Test N = 30 F (%)	Post-Test N = 30 F (%)	t' Value
1	Neither visible nor palpable	10 (33.33)	0 (0)	t = 2.02 df = 29 NS
2	Visible but not palpable	7 (23.33)	15 (50)	
3	Barely visible and palpable	5 (16.6)	2 (6.66)	
4	Visible and palpable	5 (16.66)	6 (20)	
5	Clearly visible and easily palpable	3 (10)	7 (23.33)	
	Mean $\pm$ SD	2.46 $\pm$ 1.38	3.16 $\pm$ 1.28	Mean difference 0.7

Note: statistical table value 2.05, $p \leq 0.05$, $df = 29$

It can be depicted from the table that the computed table of $t' = 2.02$ is less than the table value of $t = 2.05$ at $p \leq 0.05$ level of significance. Therefore, reject the hypothesis H_1 and accept the null hypothesis H_0 . Hence, it can be conclude that there is significant decrease in the post test vein assessment score of the patient than the pre-test VAS score but it is less than the experimental group.

The diagrammatic representation of the comparison of the pre-test and post-test Vein Assessment Score (VAS) of mean level of the sample below:



Graph: comparison between pre-test and post-test mean score of vein assessment scale in control group

Table 5: Comparison of the pre-test and post-test vein assessment scale (VAS) in experimental group. N = 30

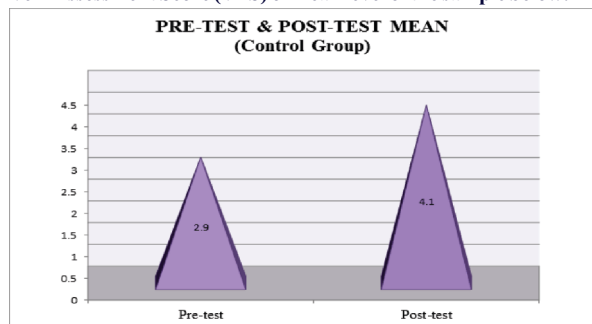
Score	Peripheral Veins Status	Pre-Test N = 30 F (%)	Post-Test N = 30 F (%)	t' Value
1	Neither visible nor palpable	4 (13.33)	0 (0)	t = 6.39 df = 29 S*
2	Visible but not palpable	7 (23.33)	3 (10)	
3	Barely visible and palpable	10 (33.33)	5 (16.66)	
4	Visible and palpable	6 (20)	8 (26.66)	
5	Clearly visible and easily palpable	3 (10)	14 (46.66)	
	Mean $\pm$ SD	2.9 $\pm$ 1.18	4.1 $\pm$ 1.02	Mean difference = 1.83

Note: statistical table value 2.05, $p \leq 0.05$, $df=29$

It can be depicted from the table that the computed table of 't'= 6.39 is greater than the table value of $t=2.05$ at $p \leq 0.05$ level of significance. Therefore, accept the hypothesis H_1 and rejected the null hypothesis H_{01} . Hence, it can be concluded that there is significantly increased in the post test VAS score of the patient exposed to the moist heat therapy than the pre-test VAS score.

The diagrammatic representation of the comparison of the pre-test and post-test

Vein Assessment Score (VAS) of mean level of the sample below:



Graph:2 Comparison between pre-test and post-test mean score of vein assessment scale in experimental group.

SECTION III: Association between post-test vein assessment scale (VAS) score of patient with selected demographic data.

Table 6: Association between post-test vein assessment scale (VAS) score of patient with selected demographic data of Control Group. N=30

SR. NO.	DEMOGRAPHC	VAS Score				Chi square value	df	Table value	Inference
		2	3	4	5				
1.	Age :-					17.83	9	16.92	*S
	a) 21-30 year	2	0	1	2				
	b) 31-40 year	2	0	2	1				
	c) 41-50 year	4	2	2	1				
	d) 51-60 year	4	0	1	3				
2.	Gender :-					4.38	3	7.82	NS
	a) Male	6	1	4	6				
	b) Female	9	1	2	1				
3.	Occupation :-					2.93	3	7.82	NS
	a) worker	7	2	4	5				
	b) non-worker	8	0	2	2				
4.	Weight :-					13.05	9	16.92	NS
	a) 21-40 kg	2	0	1	4				
	b) 41-60 kg	2	1	1	3				
	c) 61-80 kg	6	1	2	0				
	d) 81-100 kg	5	0	2	0				
5.	Blood pressure					8.45	6	12.59	NS
	a) Normal	5	2	2	2				
	b) Hypertension	3	0	3	4				
	c) Hypotension	7	0	1	1				
6.	Site of IV cannulation					12.64	9	16.92	NS
	a) Basilica vein	2	1	1	1				

	b) Cephalic vein	7	1	3	3				
	c) Median vein forearm	4	0	1	2				
	d) Medial cubital vein	2	0	0	1				
7.	Habit of patient					9.93	9	16.92	NS
	a) Alcohol	2	0	1	2				
	b) Smoking	2	0	2	1				
	c) No toxic habit	8	2	0	3				
	d) a & b both	3	0	3	1				
8.	History of complication associated with vascular access					5.33	9	16.92	NS
	a) Phlebitis	1	0	1	2				
	b) Thrombosis	2	0	1	2				
	c) Infiltration	2	0	1	1				
	d) No any complication	10	2	3	2				

Note: $p \leq 0.05$, S-Significant, NS-Not significant

It can be depicted from the table that demographic variables age is associated with VAS score and other are gender, occupation, weight, blood pressure, site of IV cannulation, habit of patient and history of complication associated with vascular access are significantly not associated with post-test Vein Assessment score at $p \leq 0.05$ levels.

Hence the H_1 hypothesis is accepted for demographic variables are age. Where other are rejected H_2 for other demographic variables accepted the null hypothesis H_{02} .

Table 7: Association between post-test vein assessment scale (VAS) score of patient with selected demographic data in Experimental Group N=30

SR. NO.	DEMOGRAPHIC	VAS Score					Chi square value	df	Table value	Inference
			2	3	4	5				
1.	Age :-						17.83	9	16.92	*S
	a) 21-30 year	2	0	1	2					
	b) 31-40 year	2	0	2	1					
	c) 41-50 year	4	2	2	1					
	d) 51-60 year	4	0	1	3					
2.	Gender :-						4.38	3	7.82	NS
	a) Male	6	1	4	6					
	b) Female	9	1	2	1					
3.	Occupation :-						2.93	3	7.82	NS
	a) Worker	7	2	4	5					
	b) non-worker	8	0	2	2					
4.	Weight :-						13.05	9	16.92	NS
	a) 21-40 kg	2	0	1	4					
	b) 41-60 kg	2	1	1	3					
	c) 61-80 kg	6	1	2	0					
	d) 81-100 kg	5	0	2	0					
5.	Blood pressure						8.45	6	12.59	NS
	a) Normal	5	2	2	2					
	b) Hypertension	3	0	3	4					

	c) Hypotension	7	0	1	1				
6.	Site of IV cannulation					12.64	9	16.92	NS
	a) Basilica vein	2	1	1	1				
	b) Cephalic vein	7	1	3	3				
	c) Median vein forearm	4	0	1	2				
	d) Medial cubital vein	2	0	0	1				
7.	Habit of patient					9.93	9	16.92	NS
	a) Alcohol	2	0	1	2				
	b) Smoking	2	0	2	1				
	c) No toxic habit	8	2	0	3				
	d) a & b both	3	0	3	1				
8.	History of complication associated with vascular access					5.33	9	16.92	NS
	a) hlebitis	1	0	1	2				
	b) Thrombosis	2	0	1	2				
	c) Infiltration	2	0	1	1				
	f) No any complication	10	2	3	2				

Note: $p \leq 0.05$, S-Significant, NS-Not significant

It can be depicted from the table that demographic variables age, gender, occupation, weight, blood pressure, site of IV cannulation, history of association with vascular access are significantly associated or not with post-test Vein Assessment Scale score and demographic score at $p \leq 0.05$ level.

Hence, hypothesis H_2 is accepted for demographic variables were age, occupation, weight and site of IV cannulation. Rejected H_2 for other demographic variables but accepted the null hypothesis H_{02} is gender, blood pressure, habit of patient and history of complication association with IV cannulation.

DISCUSSION:

Major Finding Of The Study:

The investigator found in control group the majority of sample 9 (30%) age group between 31-40 year. Majority of patient is 17 (53.33%) is male. Were as worker and non-worker that is 18 (60%) and 12 (40%). Majority 9 (30%) are having weight 61-80 kg and 11 (33.33%) are having normal blood pressure. Almost half of patient having IV site cephalic vein 14 (46.66%). Majority patient having the no toxic habit 13 (43.33%), were 17 (56.66%) is no any complication in history of complication associated with vascular access.

The investigators found in experimental group the majority of sample by 9 (30%) age group is 41-50 year, distribution of sample according to gender is (17 male, 13 female). Majority of having the worker 20 (66.66%), were 8 (26.66%) are having weight same for two groups 21-40 kg 41-60 kg. majority of having normal blood pressure 14 (46.66%). Site of IV cannulation have almost half of sample 11 (36.66%) and half of patient having the no toxic habit 14 (46.66%). Majority of having no any complication 13 (43.33%) are history of complication associated with vascular access.

The percentage of the VAS score in pre-test mean was 2.46 and post-test 3.16 with $t = 2.02$ ($p \leq 0.05$) in control group. The VAS score in experimental group mean pre-test 2.9 and post-test 4.1 with $t = 6.39$ ($p \leq 0.05$).

It is seen that during the study demographic variable like gender, weight, blood pressure habit of patient and history of complication associated with vascular access significantly not association with pre-test VAS score. Age, occupation and site of IV cannulation is significantly associated with pre-test score VAS in control group. No experimental group no any significant association between VAS score and demographic data. ($p \leq 0.05$ level)

All the above result concludes that the moist heat therapy for vein visibility and palpability was effective.

CONCLUSION

Based on the findings of the following conclusion was dawn. The Vein Assessment Scale (VAS) among the patient admitted in new civil hospital. The moist heat therapy daily for 10 minute was given to the experimental group. The moist heat therapy increased the vein visibility and palpability of the patient. Based on the statistical finding, is evident that moist heat therapy helped the visibility and palpability of the peripheral venous.

Researcher has selected new civil hospital, Surat for the study, based on the record researcher found that, the visibility and palpability of the patient. Pre-test VAS score of control group in that VAS highest score in pre-test score 1 (neither visible not palpable) 10 (33.33%) and in post-test VAS score 2 (barely visible and palpable) was 15 (50%). Other pre-test score of control group VAS 2 (visible but not palpable) is 7 (23.33%), VAS 3 (barely visible and palpable) is 5 (16.6%) and VAS 4 (visible and palpable) is 5 (16.66%). VAS 5 is finding in pre-test sample is 3 (10%). Post test score of control group VAS 1 is 0%, VAS 3 (barely visible and palpable) is find 2 (6.66%), VAS 4 (visible and palpable) is 6 (20%) and VAS 5 clearly visible and easily palpable is 7 (23.33%).

VAS (Vein Assessment Scale) score of experimental group. VAS 1 (neither visible not palpable) in experimental group pre-test 4 (13.33%) and in post-test 0%. VAS 2 (visible but not palpable) on pre-test 7 (23.33%) and post-test 3 (10%), VAS 3 (barely visible and palpable) in pre-test and post-test as follow 10 (33.33%) and 5 (16.66%). VAS 4 (visible and palpable) in pre-test 6 (20%) and post-test of experimental group is 8 (26.66%). 3 (10%) VAS 5 is found in pre-test sample and post test score is 14 (46.66%).

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Conflict Of Interest: The Author declares no conflict of interest in the study.

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