The Journal of Nursing Trendz
Vol. 10, Issue 2, May - August 2019, pp-03-08

IndianJournals.com
DOI: 10.5958/2249-3190.2019.00011.7

VALSALVA MANEUVER ON INTENSITY OF PAIN AND ANXIETY AMONG PATIENTS UNDERGOING PERIPHERAL INTRAVENOUS CANNULATION.

Gideon R., Junior Lecturer, College of Nursing, CMC,
Florence S., Professor & Head, Operating Room Nursing, CMC, **Ida N.,** Professor, College of Nursing, CMC, &
Serina R. S., Associate Professor, Department of Anaesthesia, CMC, Vellore.

Abstract

Venous cannulation is often a painful procedure with the potential to cause significant anxiety, distress, and discomfort. This study intended to determine the effectiveness of Valsalva maneuver on intensity of pain and anxiety among patients undergoing peripheral intravenous cannulation. Using quantitative approach, an experimental study with post test only design was undertaken in the injection room of a tertiary care hospital in Vellore. Consecutive sampling technique was utilized and 50 samples in each group were randomly allocated. Control group received standard care and experimental group were asked to perform Valsalva maneuver before undergoing intravenous cannulation. Effectiveness was assessed using NPRS and self reported anxiety scale. The difference in the pain response was found to be statistically significant and there was a positive correlation between the intensity of pain and anxiety.

Keywords: *Valsalva manoeuvre, pain, peripheral intravenous cannulation.*

Introduction

Intravenous cannulation is a mandatory procedure for the administration of IV fluids, medications and safe administration of anaesthetic agents. Each year 4 million people all over the world receive intravenous therapy through a peripheral venous cannula. Upto 70% of patients require a peripheral venous line during their hospital stay. Peripheral venous therapy accounts for 15-20% of total patient days in acute care hospitals. Venous cannulation is often a painful procedure with the potential to cause significant anxiety, distress, and discomfort, which may delay the patient seeking medical help.

Pain affects both psychological and physical well being of patients and hence only pharmacotherapy does not provide the relief in all the cases. It should be managed with broader perspective incorporating multi modal non-pharmacological & supportive treatments Nurses need to be aware of pain sensitivity differences among patients and to value patient's self-reports as a reliable tool for pain assessment.

Pharmacological measures such as the application of local anaesthetics treat only the somatic component of the pain, whereas attention diverting measures focus on the psychological component of pain. Valsalva maneuver is a simple, cost effective, non pharmacological and easy to perform method to reduce pain. Valsalva maneuver can be performed by blowing into a rubber tubing connected to a sphygmomanometer dial and raise up to 20 mm of Hg for a period of at least 20 seconds. During Valsalva maneuvre the lung is compressed by the thoracic cage. The intra thoracic pressure increases resulting in baroreceptor activation of either cardiopulmonary baroreceptor reflux or sinoaortic baroreceptor reflux inducing anti-nociception.

Statement of the problem

An experimental study to assess the effectiveness of Valsalva manoeuvre on intensity of pain and anxiety among patients undergoing peripheral intravenous cannulation in Christian Medical college, Vellore, Tamilnadu.

Objectives

- To identify the difference in the intensity of pain among patients undergoing peripheral intravenous cannulation using standard care and valsalva manoeuvre.
- To assess the level of anxiety among patients undergoing peripheral intravenous

cannulation using standard care and valsalva manuevre.

- To find the relationship between the intensity of pain & anxiety among patients undergoing peripheral intravenous cannulation.
- To determine association between the anxiety among patients undergoing peripheral intravenous cannulation with the demographic & clinical variables.

Hypotheses

H1: There is a significant difference in the intensity of pain among patients undergoing peripheral intravenous cannulation using standard technique and valsalva manoeuvre.

H2: There is a significant relationship between intensity of pain and anxiety among patients undergoing peripheral intravenous cannulation.

H3: There is a significant association between anxiety among patients undergoing peripheral intravenous cannulation with the demographic & clinical variables.

Methodology

Using quantitative approach, an experimental study with post test only design was undertaken for a period of 6 weeks. Patients undergoing peripheral intravenous cannulation in the injection room of the emergency department of Christian Medical college, Vellore. Subjects were selected using consecutive sampling technique. Patients who are conscious & well oriented, between the age group of 18 to 65 years and who can understand, speak, read and write English, Tamil, Hindi and Bengali were included in the study.

Patients with problems in communication, abdominal and cardiac surgeries, neurological impairment, glaucoma, skin infections, who can't hold their breath up to 20 mm, who cannot be cannulated in the first attempt and pain from other causes were excluded from the study. The subjects were randomly allocated to control and experimental group. A minimum of 25 samples was included in each group. Control group received standard care and experimental group were asked to perform valsalva manoeuvre before undergoing peripheral intravenous cannulation. Effectiveness was collected using Numerical Pain rating scale and self reported anxiety scale

Instruments used for Data Collection

Tool 1: Demographic and clinical data

Demographic data includes age, gender, educational status and occupation, clinical data includes the number of previous cannulations & sites of cannulations.

Tool 2: Numerical pain rating scale

It is a standardized scale. The numerical pain rating scale was administered & the respondent was asked to indicate the numeric value on the segmented scale that best describes their pain intensity. Scores range from 0-10 points, with higher scores indicating greater pain intensity. Pain scores were classified as, mild pain (1 to 3), moderate pain (4 to 6), and severe pain (7 to 10).

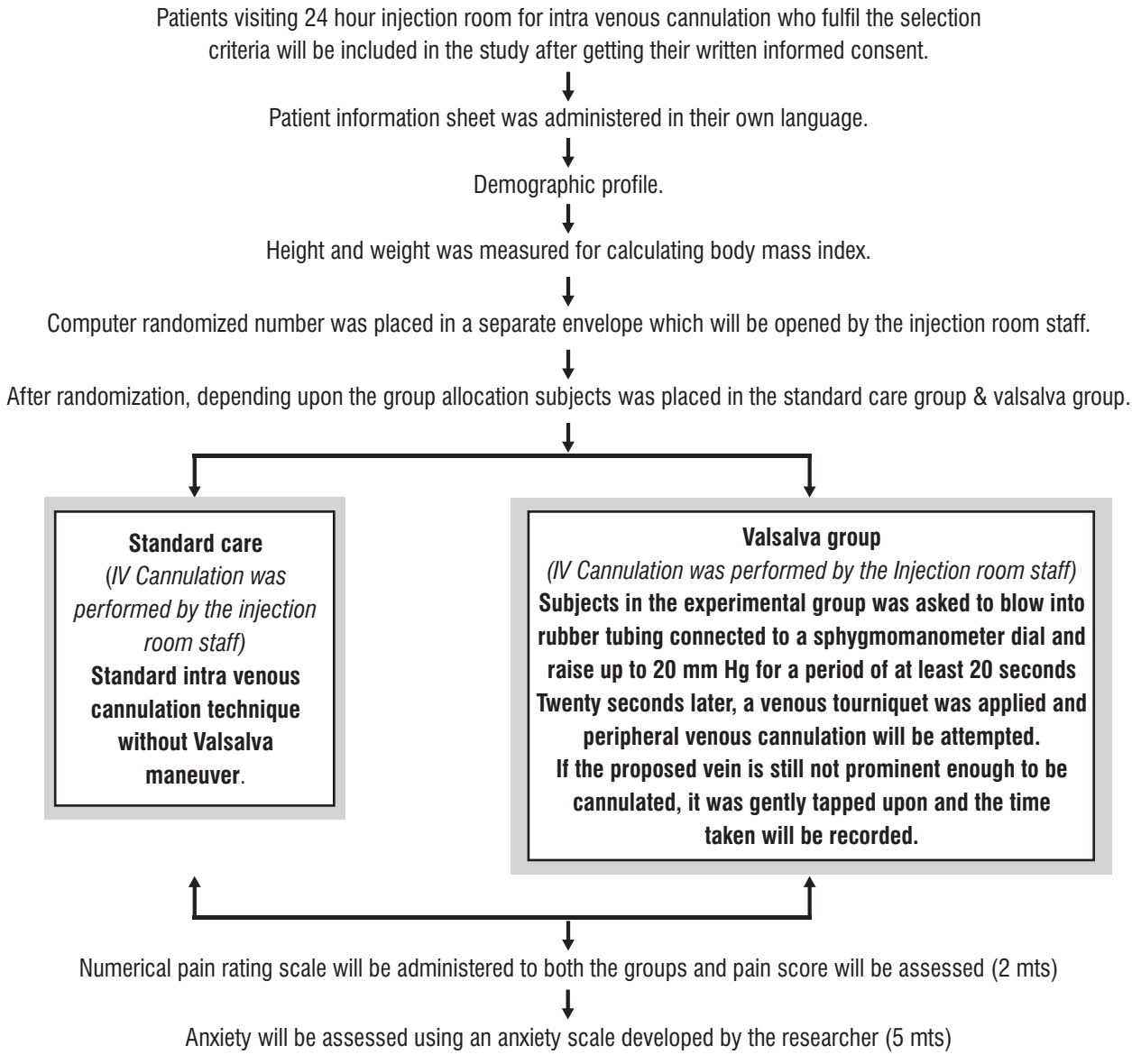
Tool 3: Anxiety tool

The assessment is with 10 questions measuring the transitory nature of current anxiety state. It deals about "how patient felt at a given point of time" (Not at all -0, somewhat-1, moderately so-2, very much so-3). The scores were classified as: Low anxiety (0-20), Moderate anxiety (21-35), High Anxiety (>36). Content Validity Index (CVI) was found to be 0.94. Cronbach's alpha of 0.85 was obtained and reliability coefficient using split half technique was 0.84. Translation was done by experts in the field and back translation was also done.

Ethical considerations

- The study was conducted after getting approval by college of nursing research committee and Institutional review board approval (IRB Min No: 10272) of Christian Medical College, Vellore.
- CTRI Acknowledgement Number is: REF/2017/05/014310
- A written informed consent was obtained from participants in language known to them after explaining the purpose of the study.

Data collection procedure



Results and discussion

Table 1

Distribution of subjects according to Demographic Variables. (N=100)

Demographic Variables		Control group (n=50)		Experimental group (n=50)	
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Age	18-40	25	50	19	38
	41-65	25	50	31	62
Gender	Male	31	62	34	68
	Female	19	38	16	32
Education	Primary /secondary	42	84	41	82
	Graduate and above	8	16	9	18
Occupation	Unemployed	25	50	28	56
	Employed	25	50	22	44

Table 1 depicts that

- The age group between 41-65 was high among the subjects, 62% (31) of subjects in experimental group and 50% (25) of them are in the control group.
- Majority of them were males, 62% (31) in the control group and 68% (34) in the experimental group.
- Most of them have completed secondary school of education, 84% (42) in the control group and 82% (41) in the experimental group.
- The unemployed were 50% (25) in the control group and 56 % (28) in the experimental group.

Table 2

Distribution of subjects according to clinical Variables. (N=100)

Clinical Variables		Control group (n=50)		Experimental group (n=50)	
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Number of previous cannulation	Less than twice	35	70	41	82
	More than twice	15	30	9	18
Sites of cannulation	Dorsum of the hand	34	68	35	70
	Inner and outer aspect of forearm	16	32	15	30
Body mass index	Less than 2	40	80	47	94
	Above 24	10	20	3	6

Table 2 depicts that

- The subjects who had cannualation less than twice was 70% (35) in the control group and 82% (41) in the experimental group.
- Majority of them had cannulation in the dorsum of the hand, 68% (34) in the control group and 70% (35) in the experimental group.
- Most of them had BMI less than 24, 94% (47) in the control group and 80% (40) in the experimental group.

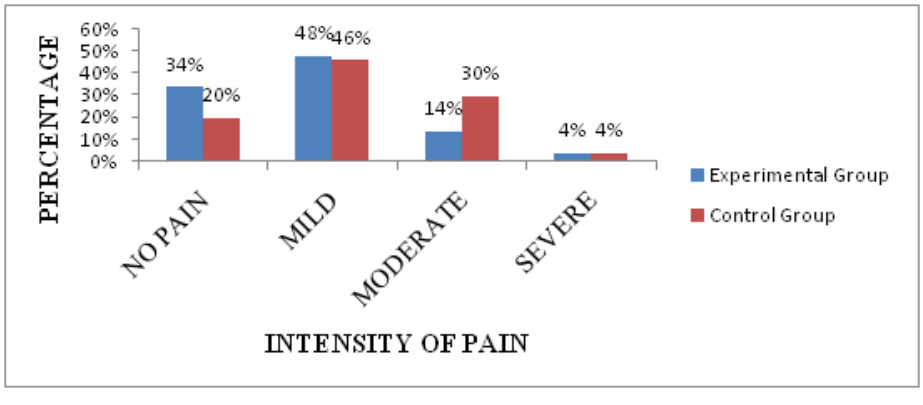


Fig 1. Distribution of subjects according to the intensity of pain (N=100)

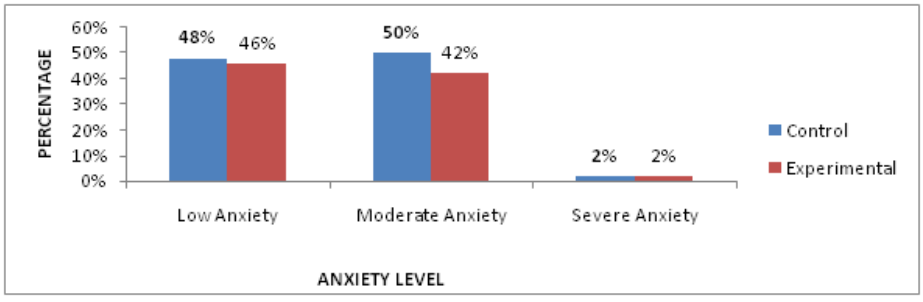


Fig 2. Distribution of subjects according to anxiety level. (N=100)

Fig. 2 depicts that 2% (1) of the subjects in both control and experimental group had severe anxiety.

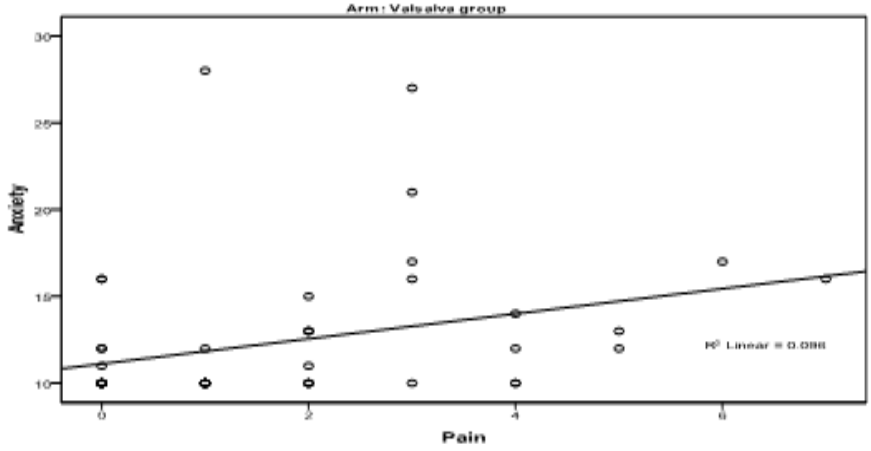


Fig. 3: Illustrates that there was an evidence of statistically significant positive correlation between intensity of pain and anxiety among subjects undergoing peripheral intravenous cannulation in standard care and Valsalva manoeuvre. (P= 0.003) r= 0.413.

Major Findings of the study

- The study revealed that the mean ± SD score of intensity of pain is 1.7 ± 1.74 in the experimental group and 2.72±2.12 in the control group.
- The study also found that 48% in the control group and 46% in the experimental group had low anxiety. 50% in the control group and 52 % in the experimental group had moderate anxiety and 2% in both the groups had severe anxiety.
- The study highlighted an evidence of stastistically significant difference in the mean pain score of the subjects undergoing peripheral intravenous cannulation using standard care and valsalva technique (p<0.008) with 95% Confidence Interval. The mean differnce in the pain response was 1.02.
- The study reflected that there was a positive correlation between intensity of pain and anxiety among subjects undergoing peripheral intravenous cannulation in standard care and valsalva manoeuvre (p= < .001) ρ= 0.358.
- The study identified that there was a significant difference in the intensity of pain among subjects undergoing peripheral intravenous cannulation based on the gender of the subjects (P=.001).

Conclusion

Pain is a common manifestation across medical and surgical conditions and it is a critical component of care. Standards of care in place increases the risk

of legal action in institutions for poor pain management, and there are instances of law suits filed for poor pain management. Advancement in health care and awareness regarding health rights make patients to claim that nurses should be advocating for the comfort management for patients undergoing painful procedures and explore more approaches to reduce pain and anxiety.

The gap between the theory and practice should be minimized by incorporating evidence based practice and encouraging young emerging nurses to involve in research regarding various aspects of patient comfort. The effort of identifying the effectiveness of valsalva manoeuvre in reducing the intensity of pain among patients undergoing peripheral intravenous cannulation will enlighten the nurses to provide the best comfortable care to the patients.

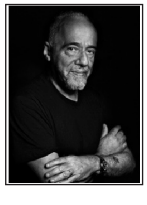
References

- Leung, L. (2012). From ladder to platform: a new concept for pain management. *Journal of primary health care* , 254-258.
- Francis, L. (2013). Postoperative pain: Nurses' knowledge and patients' experiences. . *Pain Management Nursing, 14(4)* , 351-357.
- Melzack, R. (1996). Gate control theory: On the evolution of pain concepts. *Pa in Forum: Volume 5: Issue 2* , 128-138.
- CY, Y. C. (2012). Pain during venous cannulation: Double-blind, randomized clinical trial of analgesic effect between topical amethocaine and eutectic mixture of local anesthetic. *Journal of Anaesthesiology,Clinical Pharmaclogy*, 205-209.

Longer sleep duration including daytime napping is associated with increased cardiovascular risk.

Results of a study of 116,632 people from 21 countries published online Dec. 5, 2019 in the European Heart Journal show that estimated total sleep duration of 6 to 8 hours daily is associated with the lowest risk of deaths and major cardiovascular events. Daytime napping is associated with increased risks of major cardiovascular events and deaths in those with >6 h of nighttime sleep but not in those sleeping ⩽ 6 h/night.

eMediNexus, 03 January 2019



"It's the possibility of having a dream come true that makes life interesting."

- Paulo Coelho.