

Find out the effect of Hot application on the prevention of Thrombophlebitis among patients with Peripheral Intra Venous Cannula in a selected hospital at Kasaragod, Kerala.

Dr Padmakumar S¹, Dr Ambily V V², Dr Prasanna Deshpande³, Dr Manjunath Beth⁴

^{1,2}Assistant professor, Komar University, Kurdistan, Iraq

³Professor, SDM University, India

⁴Associate professor, Uka Tarsdia University, India

Email: pappancbz@gmail.com

DOI: 10.47750/pnr.2022.13.S06.176

Abstract

BACKGROUND: An evaluative quasi-experimental study was undertaken to find out the effect of Hot application on the prevention of Thrombophlebitis among patients with Peripheral Intra Venous Cannula (PIVC) in a selected hospital in Kasaragod, Kerala.

AIMS AND OBJECTIVES: The objectives of this study were to find out the occurrence of Thrombophlebitis among patients with PIVC in the Experimental group and Control group by using the Modified Thrombophlebitis Scale, to compare the occurrence of Thrombophlebitis in the Experimental group and Control group and to find out the association between the occurrence of Thrombophlebitis and selected variables.

METHODOLGY: The conceptual framework of the study was based on Lydia Hall's Core, Care and Cure model. The research tool was the Modified Thrombophlebitis Scale. The study was conducted in Malik Deenar Charitable Hospital, Kasaragod in January 2013. By purposive sampling technique, 60 samples that met the inclusion criteria were selected.

RESULTS: Results of the study showed that the occurrence of Thrombophlebitis in the Experimental group after Hot application was 6.67% and, in the Control, the group was 93.33%. The calculated 'Z' test score (6.7) was higher than the table value ($p=1.96$) at a 0.05 level of significance. There was no significant association between the occurrence of Thrombophlebitis and selected variables except for the number of Intra Venous (IV) medications administered. There was an evident difference in the occurrence of Thrombophlebitis in the Experimental group and Control group.

CONCLUSION: Thus, it was proved that the Hot application was effective in the prevention of Thrombophlebitis among patients with PIVC.

Keywords: Effect, Hot application, Thrombophlebitis, Peripheral Intra Venous Cannula (PIVC), Intra Venous (IV)..

INTRODUCTION

The nursing profession assumed the role of initiation of IV therapy, and gathered strong body of knowledge on infusion therapy since 1940s. Nursing management of complication of IV infusion therapy is crucial in present era of advanced therapeutic technique. About 90% of hospitalized patients receive IV fluids and medications, which puts the patients at risk for developing complications associated with IV therapy. Today in any hospital, IV therapy is a routine nursing task. It has become a major component of patient's medical as well as nursing care. The word meaning of IV is "within a vein". So, IV therapy is the infusion of liquid substances directly into a vein. IV therapy has wide range of purposes, varying from monitoring pressures, administering medications, fluids, blood and also for administering Total Parenteral Nutrition. Even though IV therapy has many benefits, it also has many adverse effects like infection, Thrombophlebitis, infiltration/extravasations, fluid overload, electrolyte imbalance, embolism etc. Among these, the most frequently encountered problem is Thrombophlebitis. The term Thrombophlebitis often interchangeably used with the term phlebitis. Unfortunately, it is so common and it can produce

debilitating effects. Extravasation or infiltration occurs when fluids or medications penetrate into the tissues surrounding an IV site following damage to the vessel endothelium. When the blood veins are damaged, collagen in the blood vein wall is exposed. Platelet responds to collagen by initiating the clotting process. The nurse who administers IV medications or fluids should know its adverse effects and take appropriate interventions before starting the infusion, as infusion failure results to phlebitis and infiltration. Hence nurses need to be aware of and consider an interventional approach to prevent Thrombophlebitis.

Background of the problem: IV therapy involves the injection of fluids, medications and nutrition directly into the blood stream. It is considered faster-acting than oral or other forms of medication. IV therapy allows medicine to reach the heart quickly, as well as circulate through the body extremely fast. It is an integral part of modern medicine and is practiced in every healthcare setting, which deals with critical and general ailments of the ill persons. Majority of the IV drugs are administered by nurses, who are increasingly involved in the insertion of peripheral vascular access devices. IV therapy saves numerous lives; however, patients may develop complications secondary to this modality, varying from minor complications to death. One of the most common complications of IV therapy is phlebitis. Phlebitis refers to the clinical finding of pain, erythema, swelling, induration, and palpable venous cord. It remains a significant problem in clinical practice and causes patient discomfort, cannula replacement, prolonged hospital stay and increased health care costs. A study in the *Journal of Infusion Nursing*, reported that about 50% of the patients developed Thrombophlebitis within 96 hours of IV cannulation. A recent study, conducted by Rhode Island Hospital, found that more than one in ten catheter-related blood stream infections (CRBSIs) in their hospitalized patients were caused by infected Peripheral Intravenous Catheters. A prospective observational study on peripheral intravenous catheter related phlebitis and its contributing factors among adult population at KUTH, Dhulikhel Hospital was carried out among 230 clients who were under first time peripheral infusion therapy during two months period. The result showed that 59.1% of patients developed phlebitis. Hence it was concluded that the incidence rate of phlebitis rose sharply after 36 hours of PIVC insertion. Heat therapy is a traditional nursing intervention in which heat is typically applied by placing a warming device on the relevant body part. Recent studies indicate that, heat therapy (especially dry hot application) causes vasodilatation, the expansion of the blood capillaries (vessels) and improves blood flow. The increased blood flow to the affected area provides proteins, nutrients, and oxygen for better healing and eliminates carbon dioxide and metabolic waste from the area. The registered nurse is the only member of the health team who can assume the responsibility for regular monitoring of IV therapy and prevention of complications. An understanding of the factors leading to complications following IV therapy, under existing condition of patient care would increase the possibility of planning appropriate nursing care activities like dry heat therapy, which would reduce the occurrence of Thrombophlebitis.

NEED FOR THE STUDY:

The Infusion Nurses Society's National Standards of Practice suggested that a nurse should know the complications of IV infusion and should take appropriate interventions before starting the infusion. Adverse effects of IV therapy can be too dangerous and sometimes patient may need surgical intervention resulting in large scars, experience limitation of function, or even require amputation. Another long-term effect is complex regional pain syndrome, a neurologic syndrome that requires long-term pain management. These complications can be prevented by using appropriate nursing interventions which include early recognition, prevention, and treatment. This article recommends the use of heat therapy as a preventive strategy for infusion related complications. Researcher's own experience in clinical field identified that there are many patients with PIVC who developed Thrombophlebitis and related complications. In addition to the patient, the family members also were much tensed and worried by seeing the erythematous and swollen hand which was cannulized. Thus, IV cannulation, a simple nursing procedure not only affects the physiological aspects of the client but also the psychological aspects of the family. It is the responsibility of the nurse to find an apt intervention for this crucial health problem. Most of the research studies focused on the managerial aspects of Thrombophlebitis than on preventive aspects, even though they recommended hot application as a preventive therapy, but no one practiced or implemented it as a remedial measure to prevent complications of IV therapy. Thus, the researcher was motivated to conduct a study on prevention of Thrombophlebitis by using dry Hot application in order to improve the quality of life of a patient with PIVC and to adopt this method for future routine nursing practice in hospitals.

METHODOLOGY:

The conceptual framework of the study was based on Lydia Hall's Core, Care and Cure model. The research tool was the Modified Thrombophlebitis Scale. The study was conducted in Malik Deenar Charitable Hospital, Kasaragod in January 2013. By purposive sampling technique, 60 samples that met the inclusion criteria were selected.

RESULTS:

Results of the study showed that the occurrence of Thrombophlebitis in the Experimental group after Hot application was 6.67% and, in the Control, the group was 93.33%. The calculated 'Z' test score (6.7) was higher than the table value ($p=1.96$) at a 0.05 level of significance. There was no significant association between the occurrence of Thrombophlebitis and selected variables except for the number of Intra Venous (IV) medications administered. There was an evident difference in the occurrence of Thrombophlebitis in the Experimental group and Control group.

CONCLUSION:

In present study, the effect of Hot application on prevention of Thrombophlebitis was assessed in patients with PIVC. The study revealed that Hot application was effective in preventing Thrombophlebitis. The registered nurse is the only member of the health team on a continuous basis assumes the responsibility for regular monitoring of IV therapy and prevention of complications. Hence nurses need to be aware of and consider an interventional approach to prevent Thrombophlebitis.

REFERENCES

1. Phillip LD. Manual of IV Therapeutics. Philadelphia: F.A Davis company; 2005.
2. Intravenous therapy. Wikipedia, the free encyclopedia. [cited 2013 March 05]. Available from: en.wikipedia.org/wiki/Intravenous.
3. Black MJ, Hawks JH. Medical-Surgical Nursing. 8th ed. Noida (India): Elsevier; 2009.
4. Pathophysiology of Thrombophlebitis. [cited 2013 Jun 05]. Available from: <http://rnspeak.com/pathophysiology/thrombophlebitis-pathophysiology-disease-process>.
5. Fauci AS, Braunwald E, Isselbacher KJ, Wilson JD, Martin JB, Kasper DL, et al. Harrison's principles of internal medicine. 14th ed. New York: McGraw Hill; 1998.
6. Brunner & Suddarth's. Medical Surgical Nursing. 10th ed. Philadelphia: Lippincott Williams and Wilkins; 2004.
7. IV complications. Tangent Medical. [cited 2013 Jun 05]. Available from: <http://tangentmedical.com/iv-complications>.
8. Singh R, Bhandary S and Pun KD. Peripheral intravenous catheter related phlebitis and contributing factors. Kathmandu Univ Med J [Internet]. 2008 Oct- Dec [cited 2013 Jun 05]; 6(24):(about 4 p.). Available from: <http://www.catheter-related-phlebitis> 980002.