ABSTRACT
Objective: To perform PICC catheterization in 129 hospitalized patients with chemotherapy for infusion of chemotherapy. The clinical response of patients with PICC after catheterization is to find out the causes of complications and to give appropriate care. This is to investigate the causes and nursing strategies of common complications after PICC catheterization in patients with chemotherapy. Methods: It gives the patient and his family explain, sign PICC informed consent, evaluate and select the appropriate vein, assist the patient to take the supine position, puncture side arm abduction 90 degrees, measure the puncture site to the right sternoclavicular joint The length of the third intercostal (the length of the position to the end of the catheter) and the length of the arm of 10 cm on the elbow, and record well. With sterile gloves with alcohol and povidone-iodine 3 times disinfection puncture site skin up and down 15cm, replace sterile gloves, wear isolation clothing, shop large single, shop sterile towel and hole towel, remove the PICC catheter and puncture sheath, and puncture, remove the puncture sheath sheath, under the elbow joint 2cm at the puncture, see the blood after the needle and then a little to ensure that the needle bevel completely into the blood vessels, loose tourniquet, withdrawal Needle tube, press the end of the tube to stop bleeding, the pre-punched catheter along the puncture sheath tube forward tube, tube to 15cm when the patient with the head toward the puncture side and close to the shoulder, tube to the required length, Will be introduced into the guide wire from the catheter, then take the saline syringe back to the blood (to ensure that the catheter in the blood vessels), then to joints, slow injection of saline and then heparin dilution positive pressure sealing tube. With a small yarn block covered puncture points, transparent dressings and elastic bandage to stop bleeding. To help patients with chest radiographs to determine the location of the infusion device and the catheter after the end of the connection can be infusion. To the patients and their families to explain the tube and tube with the attention during the catheter and catheter stay time to get with, to prevent the occurrence of complications, make a record. Results: In this group, 7 cases of puncture point bleeding, the incidence was 5.4%, 3 cases of puncture infection, the incidence of 2.3%, 3 cases of phlebitis, the incidence of 2.3%, 2 cases of catheter blockage, the incidence of 1.6%, 2 cases of catheter prolapse, the incidence of 1.6%, 1 case of thrombosis, the incidence was 0.8%. Conclusion: The application of PICC intravenous chemotherapy, catheter retention time is long, can be repeated, intermittent application. There is no need to strictly restrict the patient's activities during the course of the tube, which has no serious effect on the work and daily life of the patients. It provides a safe, convenient and effective intravenous treatment channel for the patients with cancer, improving the quality of life and the satisfaction of the care. 
KEYWORDS: Chemotherapy; Complication; Cause analysis; Thrombosis; Peripheral venous Catheterization of central venous catheter; Puncture point; Catheter occlusion

1. Introduction
1.1. Background and meaning
Peripheral venous catheterization of the central venous catheter (PICC) is a peripheral vein puncture catheter, the catheter tip in the superior vena cava or subclavian vein deep vein puncture technology, clinical widely used in the long-term need for intravenous infusion of patients. Application of PICC intravenous chemotherapy, catheter retention time is long, can be repeated, intermittent application. There is no need to strictly restrict the patient’s activities during the course of the tube, which has no serious effect on the work and daily life of the patients. It provides a safe, convenient and effective intravenous treatment channel for the patients with cancer, improving the quality of life and the satisfaction of the care. Although there are many advantages of PICC, there are still some complications and risks. Corresponding prevention and nursing measures have been taken to improve the nursing efficiency because of complications such as catheter obstruction, phlebitis, catheters, infection and so on.
1.2. Purpose and Objectives

1. To investigate the causes and management strategies of common complications after PICC catheterization in patients with chemotherapy.

2. To carry out PICC catheterization in 129 patients hospitalized with chemotherapy for infusion of chemotherapy drugs. Detailed observation of our department in June 2011 - January 2012 129 cases of PICC patients after the clinical response to find out the causes of complications and to give the appropriate care.

1.3. Literature review

Tumor is the body in a variety of carcinogenic factors, local tissue of a cell at the genetic level to lose its normal regulation of growth, leading to its clonal abnormalities and the formation of new organisms. Academics generally divided the tumor into benign and malignant two categories. The effect of benign tumors on the body is small, mainly for local compression and obstructive symptoms, the impact of the main parts and secondary changes. Occurrence of vital organs can also have serious consequences, such as gastrointestinal benign tumors can cause. Intracranial benign tumors such as Meningiomas, Astrocytes Gliomas can compress brain tissue, blocking the ventricle system and cause intracranial pressure and the corresponding neurological symptoms. Benign tumor secondary changes, but also on the body caused varying degrees of impact. Intestinal adenocarcinoma, bladder papilloma and other surface ulcers can cause bleeding and infection. Malignant tumor due to poor differentiation, rapid growth, infiltration destruction of the structure and function of organs, and the occurrence of metastasis, and thus it causes a serious impact on the body. Malignant tumors in addition to the benign tumor can cause similar local compression and obstruction symptoms, but also may have fever, intractable pain, late there may be severe weight loss, fatigue, anemia and systemic failure state.

Chemotherapy is with chemical synthesis of drugs in the treatment of diseases. Chemotherapy is currently the treatment of cancer and some autoimmune diseases, one of the main means, but in the treatment, patients generally have significant nausea and vomiting and other side effects, to patients with discomfort. Chemotherapy refers to the use of drugs to treat cancer. These special drugs can kill tumor cells, sometimes called cytotoxic drugs. Many chemotherapy drugs come from nature, such as: plants, others are synthetic. At present, more than 50 kinds of chemotherapy drugs, such as commonly used are: epirubicin, doxorubicin, daunorubicin, mitomycin, fluorouracil deoxynucleotides and so on. These drugs are often used in combination with different strengths.

Phlebitis (thrombophlebitis) is including thrombophlebitis and deep thrombosis. After the intravenous thrombosis, the occurrence of venous thrombosis of the inflammatory response. The main cause of vascular wall damage (by trauma or intravenous intubation or input irritation caused by liquid) and varicose veins caused by intravenous blood stasis. The main clinical manifestations of the disease as walking along the veins of red, swollen, pain and obvious tenderness, and can touch the cord vein; systemic reactions rare.

Peripheral venous catheterization of the central venous catheter (PICC) is a peripheral vein puncture catheter, the catheter tip in the superior vena cava or subclavian vein deep vein puncture technique.

2. Materials and Methods

2.1. Research design

The use of patients with catheter during the catheter obstruction, phlebitis, catheter prolapse, infection and other complications to take appropriate prevention and care measures to improve the efficiency of care, the use of scale for research and evaluation.

2.2. Research objects

The object of this study came from the Second People’s Hospital of Chuzhou City, Anhui Province. Department of Oncology, 129 patients with hospitalized chemotherapy for PICC catheterization in June 2010-June 2011

2.3. Research Methods

Based on the scale of previous foreign research institutes and the recommendations of some psychologists and medical care specialists, they are designed on the basis of a large number of literatures and pre-survey to ensure the reliability and validity of the questionnaire.

Its contents include two parts:

First, the basic information: including age, gender, education, occupation, marriage and so on.
Second, structural problems: nurses with hospitalized patient observation scale (NOSIE).

2.4. Research steps

1. A survey was conducted on 129 patients with PICC catheterization in Chuzhou Second People’s Hospital.
2. Make a good record to fill in the scale.
3. Statistical analysis

2.5. Statistical analysis

All data were expressed as x ± s, P <0.05 was considered statistically significant and analyzed statistically with SPSS 13.0 statistical software.

3. Results

3.1. General information

From June 2010 to June 2011, 129 patients with hospitalized chemotherapy were enrolled in PICC patients for infusion of chemotherapy. 84 males and 45 females, and aged between 18-85 years. Among them, 39 cases of gastric cancer, 32 cases of breast cancer, lung cancer in 23 cases, esophageal cancer in 18 cases, 13 cases of intestinal cancer, lymphoma in 4 cases. Catheter retention time of 45-315 days and the average retention time of 108 days. External jugular vein puncture in 2 cases, upper limb venipuncture in 127 cases, and including expensive veins in 68 cases, 32 cases of median vein, 29 cases of head vein. Tube length 25-56cm. 125 patients were successful catheterization, catheter success rate was 97.6%. 4 cases were blocked after successful puncture, 2 cases were changed in the contralateral, 2 cases were replaced by external jugular vein puncture.

3.2. Puncture point of local conditions and self-care situation

7 cases of puncture point bleeding, the incidence of 5.4%, 3 cases of puncture infection, the incidence of 2.3%, 3 cases of phlebitis, the incidence of 2.3%, 2 cases of catheter blockage, the incidence of 1.6%, 2 Cases of catheter prolapse, the incidence was 1.6%, 1 case of thrombosis, the incidence was 0.8%.

<table>
<thead>
<tr>
<th>Complication</th>
<th>The number of people</th>
<th>Proportion</th>
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<tbody>
<tr>
<td>Puncture Point Bleeding</td>
<td>3</td>
<td>5.4%</td>
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<tr>
<td>Puncture Point Infection</td>
<td>3</td>
<td>2.3%</td>
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<tr>
<td>Phlebitis</td>
<td>2</td>
<td>2.3%</td>
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<tr>
<td>Catheter Obstruction</td>
<td>2</td>
<td>1.6%</td>
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<td>Catheter Prolapse</td>
<td>1</td>
<td>1.6%</td>
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<tr>
<td>Thrombosis</td>
<td>1</td>
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4. Discussion

4.1. Puncture point bleeding

Cause analysis more common in the puncture after 3 days and 1 month after each maintenance of the first day: due to local fixed pressure to stop bleeding pressure, or because the patient puncture side limb movement over frequency, activity is too large; Chemotherapy patients often appear during bone marrow suppression, thrombocytopenia, coagulation dysfunction, easy to cause bleeding. The group of 6 cases of little was bleeding, 1 case of more bleeding, after treatment, improved symptoms.

Nursing measures routine pre-catheterization assessment of patients, to understand the results of blood, blood clotting test; puncture at the puncture point with sterile gauze covered with elastic bandage pressure bandage hemostasis; catheter after urging the patient 3 days to avoid puncture side limbs Frequency and a wide range of activities, especially within 24 hours after catheterization and within 1 month of each maintenance day; puncture the next day, to patients with routine maintenance 1, if more bleeding, Apply a little thrombin; prohibit blood pressure in the catheter side of the upper limb; if found local oozing, timely treatment, in order to avoid increased bleeding.

4.2. Puncture point infection

Analysis of the reasons for deep vein catheterization of the formation of the human body and the outside world of direct infection channel; summer hot, high temperature, humid environment is conducive to bacterial
reproduction; catheter at the outflow of bloody fluids, secretions and other pathogens are good medium, And cancer patients during chemotherapy, autoimmune dysfunction is easy to cause infection; operator aseptic concept is not strong, disinfection is not strict; patients with poor compliance, after discharge is not on time to the hospital line maintenance can cause infection. The group of 3 cases after catheterization punctures point infection.

Nursing measures PICC puncture and maintenance personnel are required to receive formal training, to obtain the appropriate qualifications before the relevant operation; to establish control and maintenance practices, to strengthen the concept of sterility; in the patient discharged to do the relevant mission. For the infection has occurred, the initial infection should be to strengthen the number of dressing, each dressing use of Iodophor pressure sterilization puncture point, the local can be coated with Xilianti, if necessary, prescribed routine application of antibiotics, exudate line culture and drug allergy testing. Such as 3 days of local and systemic symptoms without improvement who need to be prescribed.

4.3. Phlebitis

Analysis of causes (1) mechanical phlebitis: mechanical phlebitis is acute aseptic inflammation, often occurs 2-3 days after puncture, may be related to the following factors: due to the process of catheterization or catheterization in the catheter Blood vessels in the repeated movement of the vascular endothelium caused by the choice of catheter type and thickness of the blood vessels is not appropriate; head vein from the bottom up gradually thinning, and more venous valve, tube easy to easily damage the venous valve; puncture technology unskilled The blood vessel itself causes the same part of the blood vessels to puncture or penetrate the blood vessels, causing damage to the blood vessel wall caused by inflammation; only the process of puncture sheath and catheter on the venous intima, venous valve mechanical friction stimulation allergic; Patients, cachexia, systemic resistance and repair of venous wall injury decreased ability; early catheterization of the side of the limb body activity caused by excessive catheter and vascular wall frequent friction, causing intravascular touch damage. (2) Thrombophlebitis: catheter type and size of the blood vessels is not appropriate, puncture damage to the vascular intima and sealing is not caused. (3) Chemical irritation phlebitis: from disinfectants, talc and other foreign substances caused by chemical stimulation; more than 1 week after the catheter occurred, there are individual patients in the stay for several days to several months.

are measures before and after the correct assessment of the objective evaluation of blood vessels, in principle, should be preferred to your veins, the best choice of the right path, because the path is shorter and less curvature, can reduce the operation damage the vascular intima; Should not be too fast; delivery of the process in case of resistance, cannot force the tube, can be pushed along the saline side of the tube; tube within 3 days should avoid puncture side limb excessive activity, such as puncture point in the elbow, puncture Should avoid frequent activities elbow. The group occurred in 3 cases of phlebitis, by raising the limb, reduce the activity, the puncture point above the local hot, hi Liao, golden powder topical, Kang Huier transparent paste topical, 1 week better.

4.4. Catheter blockage

Analysis of the causes of complete catheter blockage is mainly red tube, sealing method is not correct, not regularly punctured catheter distorted, discounted, or due to blood clots or fiber clots, drug precipitation, catheter dislocation, catheter kink or rupture, tumor Or neoplasm and other causes; partial catheter obstruction is the formation of the catheter tip of the fiber sheath wrapped. The presence of the fibrous sheath not only affects the infusion rate, but also breeds bacteria, when the catheter will be washed into the blood circulation; Moreover, fiber sheath can cause drug spills.

Nursing measures to observe the infusion rate of infusion, to keep the PICC tube smooth, to avoid distortions, discounts; infusion of high viscosity liquid and blood products, with saline irrigation tube after the tube; central venous catheter Should be used as far as possible infusion pump infusion of liquid to prevent blood flow; infusion completed timely sealing, sealing with 10ml heparin sodium dilution line pulsed tube after the positive pressure duct; patients during the treatment of intermittent infusion at least once a week Positive pressure sealing tube 1 times. Occurrence of clogging can be used more than 10ml syringe pumping, withdrawal of blood clots; if thrombosis obstruction of the catheter, available urokinase thrombolytic therapy. This group occurred in 2 cases of catheter blockage, due to the patient was discharged after the tube was not promptly caused by the catheter after thrombolysis patency.

4.5. Catheter prolapse

It causes of the analysis due to the catheter fixation method is not correct; old, restless patients cannot be a good match; individual patients with poor compliance, self-removal of the catheter; bath and sweating and other reasons to loose the loose tube film, Replace the dressing when the patient does not match, self-active limbs will be out of the catheter. The group 1 case of dressing, exposed after the film failed to cooperate with the patient, after the limb activities will be out of the catheter.
Nursing care policy before the patient and family members of the health education; Zhu Huanzhe wear loose and large sleeves of the clothes, with socks or knee to protect the elbow; nurses in the fixed catheter, it should not leave too much catheter. The thickness of the catheter is greater than 25cm, is still deep vein catheterization, after re-sterilization, fixed after the long catheter can continue to stay.

4.6. Thrombosis

Vascular injury is considered to be the initiating factor of catheter-related thrombosis, and thrombosis is mainly related to the fact that the blood viscosity of the tumor patient is higher than that of the normal person and is easy to form thrombosis. Some patients eat and drink severely limited, blood concentrated, easily lead to thrombosis.

Care measures before the operation of the correct assessment of patients with high risk factors of thrombosis, the correct grasp of the closure of the tube technology, the end of each infusion and treatment of intermittent maintenance of the application of more than 10ml saline Saline tube, the use of heparin sodium dilution 10ml Pressure tube to keep the catheter patency, to prevent the thrombus in the catheter off; suspicious thrombosis in patients with timely blood pressure ultrasound examination. Thrombosis in patients with thrombosis should be timely treatment of Urokinase thrombolytic therapy. The group of 1 patients with thrombosis after dozens of successful thrombolytic therapy.

5. Conclusions

PICC is a new way for clinical infusion, compared with the traditional central venous catheter, PICC in direct operation, simple and convenient, the success rate, trauma, safe and reliable, long indwelling, can effectively reduce the pain of repeated puncture, but also to avoid the stimulation of chemotherapy drugs on blood vessels, improve the quality of life of cancer patients. PICC-related complications and catheter care has a great relationship, therefore, to strengthen the nursing staff on the PICC catheterization technology, the causes of complications and care measures to master, attach importance to the patient’s mission, do a good job of catheter maintenance, can effectively extend the catheter Of the service life.

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