A Study on the influence of left non-dominant arm PICC catheter on complication

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Abstract:
Objective: To study the effect of peripheral left ventricular central catheter (PICC) on the left arm in the treatment of complications.
Methods: patients underwent PICC catheterizations from June 2015 to July 2016 were divided into control group and experimental group in chronological order. The control group preferred right hand catheterization, the experimental group preferred left hand, and comparisons were made between the two groups after catheterization. Results: The incidence of jugular venous ectopic in the control group was higher than that in the experimental group which is statistically significant (P <0.05). There was no statistical difference between the two groups in mechanical phlebitis, thrombosis, occlusion, poor delivery and other complications (P> 0.05). There was significant difference in patients’ satisfaction between the two groups (P <0.05). Conclusion: PICC insertion with the left arm of the preferred choice does not increase the risk of complications and reduces the risk of ectopic jugular. The non-dominant hand catheter can effectively reduce patients’ inconvenience of daily life and improve the comfort of patients.

Keywords:
Peripheraly inserted central venous catheter, Complications

PICC (peripherally inserted into the central venous catheter) puncture point in the peripheral vein, operated by a nurse, with a high successful rate of puncture \(^\text{[1]}\), can provide patients with long-term intravenous therapy access, with less trauma, long retention time, fewer complications, has become a common clinical venous access. Ventilation guidelines recommend the preferred shortest and thinnest catheter in order to reduce complications such as thrombosis and phlebitis \(^\text{[2]}\), so for a long time the right hand catheterization is clinically preferred, but in practice the patient will choose the left non-dominant hand catheter to reduce the inconvenience in their life. This study aims to compare the incidence of complications of both sides of the catheterization, which provide the basis for clinical application, and is reported below.

1 data and methods
1.1 General Information
986 cases of advanced cancer patients of chemotherapy or chronic rehydration to implement PICC in our hospital from June 2015 to July 2016 PICC specialist outpatient are chosen as the research object, excluding the left dominant hand patients, male 510 cases, female 476 cases, the average age of 55.9 years. 485 patients from June 2015 to December 2015 were control group, all of whom were placed in the right hand. 501 patients from January 2016 to July 2016 were experimental group, all from the left hand. There was not statistically significant (P> 0.05) in sex, age, vascular selection, and the number of puncturing needle of two groups of patients.

1.2 Methods of catheterization
Both groups underwent ultrasound-guided MST for PICC catheterization. The catheter used was a single-lumen three-dimensional valved peripheral central venous catheter (Size 4Fr; length 60 cm). The operation of catheterization is performed by a nurse who is specialized in tranquilizer treatment and has an annual tube volume of more than 100 cases. The operation method is strictly in accordance with the relevant rules of PICC \(^\text{[2]}\). The puncture blood vessel is selected according to the vein conditions.
1.3 Evaluation Index
After the success of catheterization, recording PICC catheter data, standardized maintenance, follow-up one month. Analyze and compare PICC complications of the two groups, and collect patient feedback.

1.4 Statistical analysis
Using SPSS 18.0 software, the statistical analysis of the observed indicators of the experimental group and control group is done by Chi-square test, inspection level \( \alpha = 0.05 \).

2 Results

<table>
<thead>
<tr>
<th>group</th>
<th>case</th>
<th>thrombus</th>
<th>Plugging tube</th>
<th>Ectopic jugular vein</th>
<th>Poor delivery tube</th>
<th>Phlebitis</th>
<th>Lymphatic fistula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>501</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Control</td>
<td>485</td>
<td>11</td>
<td>6</td>
<td>22</td>
<td>10</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>P value</td>
<td>0.83</td>
<td>0.79</td>
<td>0.01</td>
<td>0.47</td>
<td>0.58</td>
<td>0.57</td>
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</table>

From Table 1, it can be seen the significant difference in the right side of the catheter to the jugular and ectopic left catheter, P value is less than 0.05. In this study, many cases of right ventricular catheterization occurred in the case of ectopic jugular, under fluoroscopy can not be successfully adjusted in place, one case with transfusion in the latter part has the re-occurrence of ectopic jugular. Part of the right side of the catheter case it is difficult to take the pressure of the opponent, push the water, take the seat lift arms and other body position, retraction of part of the guide wire to stop ectopic jugular vein, possible analysis is the right subclavian vein and superior vena cava, neck Intravenous convergence, resulting in a larger diameter of the blood vessels here, the thoracic pressure easily become the catheter floating to the jugular vein; for some patients the right subclavian vein and the superior vena cava formed a narrow angle, the catheter is not easy to go down. While there is a certain distance in the left subclavian vein and jugular vein, left anonymous vein, the superior vena cava, did not form a confluence, chest pressure is not easy to move up the catheter; in this study when left catheter have no patients rotating the jugular vein compression, the incidence of ectopic jugular vein did not increase, indicating that the main causes of ectopic are related with left and right vascular anatomy.

From Table 2, it shows the daily life and comfort experience evaluation of patients with PICC catheter, there was a significant difference in left non-dominant hand and the right hand in the comfort of catheter experience, P value is less than 0.05. Choosing a non-dominant hand tube can reduce the tension and worry of patients in daily activities and effectively improve the convenience and comfort of patients.
References


