

Status of Stress and Cognitive of Cancer Patients with PICC Ultrasound Guidance Catheterization: A Questionnaire Survey

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Abstract

Objective: The purpose of this study was to investigate PICC cognitive status and psychological status of cancer patients with PICC catheter guided by ultrasound for the first time and to explore the correlation between the PICC cognition and psychological state of the patients.

Methods: A questionnaire survey was used to investigate the psychological status and the cognitive status of 212 cancer patients before intubation.

Results: 68 (32%) of patients were in the high tension before intubation, 91 people (44%) were in moderate tension, 53 people (24%) were in the mild tension. Patients who got lower cognitive scores on PICC experienced higher degree of tension compare to patients who got the higher cognitive scores on PICC. Patients' education level and the source of PICC knowledge affected the cognitive level of patients.

Conclusion: Nurses should strengthen the education for the patients on the PICC knowledge, especially for those who were in a low educational level. In order to improve the patient's perception of PICC, it is best for the patients to be told the knowledge of PICC by the nurses. Which will reduce the tension of patients before the indwelling catheter?

Keywords: Ultrasound; Cognitive of cancer; Catheterization

Introduction

The peripheral central venous (PICC) catheter is referred to as the peripheral venous puncture catheter; the catheter was inserted into the end of the superior vena cava 1/3 deep vein catheter placement [1]. PICC tube is a high level of puncture technology for the sterile requirements. It is very high in the level of puncture and the environment. It is mainly divided into blind puncture and ultrasound guided puncture.

For good vascular condition of patients, blind wears can achieve good results. But for patients with long-term chemotherapy, their vascular conditions are poor, blind wears a puncture success rate is low and repeated puncture will cause local tissue damage, bleeding, phlebitis and other complications occur [2].

Ultrasound guided PICC catheter is defined by ultrasound in visualization of peripherally inserted central catheter (PICC), the studied showed, that under the guidance of ultrasound device tube can improve the disposable puncture success rate, and can effectively reduce the complications occur [3,4]. At present, the major hospitals in the country have been carried out under the guidance of ultrasound catheter.

Our hospital started to carry out under the guidance of ultrasound combined with MST technology of peripherally inserted central catheter (PICC) in 2010. After that, in 2012, catheter consultation center was established and responsible for the hospital patients with

peripherally inserted central catheter (PICC), which is focus on the implementation of ultrasound guided catheter. Central catheter in special clinic ensured the quality of catheterization, reducing the complications after catheter, and reduced the ward nursing workload. But the combination of ultrasound guided MST catheter is an invasive technique, and it is a new technology. Therefore, the majority of patients, especially those patients in the first time of catheterization, will be experience psychological tension. The psychological tension will affect the process of the tube, which would result in the failure of the tube and interruption of the treatment. Therefore, to ease the tension of patients is the main measures to ensure smooth the tube. The purpose of this study was to investigate and analyze the degree of psychological stress and related factors in patients with the first set of management, in order to provide theoretical basis for the clinical implementation of the intervention measures to ease the tension of the patients.

Procedure

The questionnaire survey was used to evaluate the patients, cognition on PICC and psychological status.

A total of 212 cancer patients were included in this study, including 86 males and 126 females, aged 21-79 (55.14 ± 11.81). The study subjects were the patients who underwent ultrasound guided PICC catheter for the first time.

Research tools

The questionnaire was designed by researcher and it is consisted of three parts. The first one is general information questionnaire: including the age of patients, gender, culture, etc. The second one is PICC related knowledge questionnaire: including 6 items, the questionnaire's reliability Cronbach's alpha value of 0.82, by the relevant static therapy expert evaluation high content validity, can better reflect the purpose of the present investigation. The lowest score was 6 points; the highest score was 15 points, the higher the score, the better the cognitive level. The third one is psychological stress assessment table: this table is only one item, which was used to understand the psychological tension of the patient's. Evaluation table for the digital evaluation method, digital 0-10, 0 said not a bit nervous, 10 said patients can imagine the maximum tension, higher numbers of higher degree of stress, 1 to 3 low tension, 4-6 to moderate tension, 7-10 for high tension.

Statistical Methods

All the data were analysed by SPSS16.0 statistical software. The descriptive statistical method was used to describe the general data of the study, and the influence factors were analysed by using the single factor analysis of variance.

Results

Degree of psychological stress before tube placement

In this study, 32% of patients experienced high tension, 44% of patient's experienced moderate tension, 24% of patients experienced mild tension.

The cognitive status of PICC in the patients with ultrasound guidance before intubation

In this study, 62% of patients did not know what is the ultrasound-guided PICC; only 13% of patients know what is the ultrasound-guided PICC; 7.8% of the patients completely understand the advantages and disadvantages, 6.6% of patients know matters needing attention after catheter; 78.4% of patients did not know what is the maintenance of the catheter. 83.2% of patients did not know where to go to maintenance of the catheter when they discharged from hospital.

Comparison of cognitive scores of PICC in patients with different psychological stress (Table 1)

Single factor analysis of variance showed that there were significant differences in PICC scores among patients with different level of stress.

Level of stress	PICC scores	cognitive	F	P
Low level stress	7.85 ± 1.905			
Moderate stress	9.00 ± 1.944		2.906	0.003**
Higher level stress	9.73 ± 3.115			
**P0.01				

Table 1: Level of tension and PICC cognitive scores (n=212).

The factors related to cognitive scores of patients (Table 2)

The Table 2 showed that the education level of patients was related to cognitive scores of patients. And health educator was also related to the cognitive scores.

Factors	PICC cognitive scores	t/F	P
Sex		1.372	0.172
male	9.12+2.815		
female	8.61+2.004		
Age		1.006	0.458
20-30	9.25+1.258		
31-40	8.47+1.807		
41-50	9.29+2.175		
51-60	8.98+2.769		
61-70	8.69+1.991		
71-80	8.27+2.611		
Education		3.208	0.015*
illiterate	7.20+1.619		
Primary school	8.42+2.332		
Middle school	8.52+2.143		
High school	9.20+2.193		
University	9.90+2.773		
Sources of knowledge		2.979	0.033*
doctor	8.02+2.245		
nurses	9.17+2.342		
wardmate	8.92+2.159		
*P0.05			

Table 2: The influences of PICC cognitive scores (n=212).

Discussions

This study showed that 76% of the patients experienced tense before catheterization, of which, 32% of patients said they were very nervous. Dong Huijuan and other studies have found that the first set of patients will have varying degrees of tension [5]. In this group of patients, there are 2 patients do not want to continue to set the tube even after the puncture area disinfection, because of excessive tension. A very nervous patients was lack of coordination, excessive tension will lead to vascular contraction, the impact of the success rate of disposable catheter. Therefore, to ease the tension before catheterized is the main measure to ensure the smooth tube.

Seen from the Table 1, the level of patients cognitive of PICC was related to the degree of tension before the tube, that is, the patients who had a better understanding of the ultrasound guided PICC catheter before intubation were less likely to experience high tension.

Therefore, it is very important to take positive measures to improve the cognitive level of the patients with ultrasound guided PICC in order to avoid or alleviate the tension before the tube. Cheng Ruhong's study reported that strengthening the cognition of patients with PICC can improve the treatment compliance of patients, prolong the indwelling time of catheter, and can reduce the incidence of complications after catheter placement [6].

In this group of patients, 62% of patients do not know what is ultrasound guided PICC catheter, and PICC related knowledge is also very little. Many studies showed the patients cognitive of PICC should to be improved [7].

At present, placement of peripherally inserted central catheter (PICC) and maintenance is implemented by specialized PICC nurses [8]. But, most of communication and agreement were signed by doctor before catheterization, who has less knowledge of PICC compared to specialized PICC nurses. Therefore, most of patients lack of cognitive for PICC before catheterization. Our study also showed patients communicated with specialized PICC nurse had more knowledge compare to patients communicated with doctor before catheterization.

The Table 2 shows that patient education is one of the factors that affect the cognitive level, that is, higher education lever related high level of cognition for PICC. Because patients with a relatively high level of education could easily to understand the PICC related knowledge, expanding cognition of PICC through network, books and other ways. Therefore, in clinical work, we should to pay more special attention to the patients with low level of education. We should use simple words to help patients to understand what is PICC and how to cooperation during catheterization.

In order to improve the patient's perception of PICC, it is best for the patients to be told by the specialized nurses about the PICC. Which will reduce the tension of patients before the indwelling catheter?

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