



Original Article

Psychological status of patients with nephrotic syndrome undergoing percutaneous renal biopsy

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Abstract

Background: Nephrotic syndrome (NS) is a common clinical disease with four main clinical manifestations: hypoalbuminemia (<30 g/L), macro-proteinuria (>3.5 g/24 h), edema, and hyperlipidemia. There is a variety of pathological types that are associated with NS. Percutaneous renal biopsy (PRB) plays an important role in clinical practice in that it can be used to establish a histological diagnosis, to provide information for an ultimate NS diagnosis, and subsequent prognosis. Our aim was to observe the psychological status of patients with NS before and after PRB and investigate the factors affecting their psychological status.

Methods: Two hundred and thirty-five patients with NS were enrolled in the present study. We evaluated the psychological status of patients 24 hours before and 6 hours after PRB by using the Symptom Check List-90 and State-Trait Anxiety Inventory.

Results: We analyzed the factors affecting the psychological status of the study participants before and after this important NS procedure. Before the PRB procedure was administered, the factorial anxiety and phobic anxiety scores were higher than normal ($p < 0.05$). After PRB, only anxiety was determined to be higher than normal in the somatization score ($p < 0.05$). In general, there were higher scores among males rather than the female study participants ($p < 0.05$). Scores of all indices decreased significantly in all patients after PRB ($p < 0.05$).

Conclusion: Psychological status was common in patients who underwent PRB and were affected by many factors.

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Keywords: anxiety; biopsy; depression; nephrotic syndrome

1. Introduction

Nephrotic syndrome (NS) is a common clinical disease with a variety of pathological types. Percutaneous renal biopsy (PRB) is an essential tool for the practice of nephrology, and can be instrumental in establishing a histological diagnosis to provide information regarding kidney diseases for better diagnosis and prognosis.¹ The introduction of an automated

biopsy gun and localization of the kidney with ultrasound guidance have optimized the efficacy and safety of the whole PRB procedure, and complications associated with renal biopsy had been dramatically reduced.^{2,3} Poor psychological status is typically observed in patients who agree to undergo renal biopsy, before and after the procedure. However, it has been noted that depression and anxiety are common psychological reactions to PRB. These abnormal psychological reactions were affected by many factors.

Analysis of these factors can provide a reference to improve patients' poor psychological status. In the present study, we evaluated the psychological status of these patients by using the Symptom Check List-90 (SCL-90) and the State-Trait Anxiety Inventory (STAI),⁴ and analyzed those factors

Conflicts of interest: The authors declare that there are no conflicts of interest related to the subject matter or materials discussed in this article.

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which influenced psychological status. SCL-90 is an easily completed (about 15 minutes) instrument used during psychotherapy to monitor patient status and is sensitive to a subjective relapse of symptoms. The STAI is a questionnaire that is used to evaluate patients' anxiety levels. Our aim was to observe the psychological status of patients with NS before and after PRB and to investigate factors affecting psychological status.

2. Methods

Two hundred and thirty-five patients were provided medical treatment and the data were collected by the Department of Nephrology, Shandong University Qilu Hospital from September 2010 to July 2011. Exclusionary criteria included history of mental illness, including brain organic psychosis, symptomatic psychosis, functional psychosis, psychogenic psychosis, and neurosis. All of the above were excluded by a medical practitioner specializing in the diagnosis and treatment of mental illness.

All of the patients in this study were diagnosed with NS. Before PRB occurred, all patients were provided detailed explanations about the procedure by the operating doctor. This information included the importance, necessity, and possible complications of the procedure, and how the operation was tied into the process of PRB. All questions from the patients were answered in detail and objectively, and patients were encouraged to communicate with patients who had already accepted PRB, the purpose of which was to relieve some of the psychological tension from PRB. All enrolled cases accepted PRB with ultrasound-guide and 6 hours absolute rest.

The anxiety experience of patients accepting and undergoing PRB was evaluated with SCL-90 and STAI. All patients completed the SCL-90 scale and STAI scale within both 24 hours before and 6 hours after PRB; these questionnaires were individually completed in an environment conducive to subjectively honest response, without communication with family members. PRB was conducted within 24 hours after the pre-procedure survey was completed, and patients were asked to remain in a supine status 6 hours after PRB. The normal score is the score distribution of normal groups comprising people who have some common features of a group or groups of a sample.^{5–8}

The study protocol for this investigation was approved by the ethics committee of Qilu Hospital, and written informed

consent was obtained from all patients after they had carefully read and understood a written summary of the study plan.

2.1. Statistical analysis

All analyses were performed using the Stata statistical software package (version 9.0) (Stata Corporation, USA). Data were described as means and standard deviations for continuous variables and as frequencies and proportions for categorical variables. Thereafter, Pearson's was applied to test for correlations among study variables. The Mann-Whitney test was used for comparisons of ranked scores. Significance was accepted at $p < 0.05$.

3. Results

The demographic data of enrolled patients can be seen in Table 1. Twenty-six of the study participants were over 60 years of age, whereas 209 were not more than 60 years old. Two hundred and sixteen cases had a middle school or above educational level, accounting for 91.9% of the total study population. There was also a significant difference in duration of illness, in different age and different educational background ($p < 0.05$, Table 1).

The levels of distress of somatization, anxiety, depression, and phobic anxiety before and after PRB were higher than normal in the SCL-90 scale ($p < 0.05$) (Table 2). There was a difference, but the difference did not reach statistical significance, between communication and no-communication with patients who already accepted PRB (Table 3). The psychological status of study group was affected by many factors, including sex, age, and exact time of evaluation (Tables 2 and 4). The level of anxiety in men was more elevated than in women ($p < 0.05$). There was no significant difference between the results of patients with different ages (Table 5). The time that study participants were evaluated did affect their scores, and there was a significant difference between scores 24 hours before and 6 hours after PRB, which were both higher than normal (Table 2).

4. Discussion

NS is a common clinical disease which has four primary clinical manifestations: hypoalbuminemia (<30 g/L), macroproteinuria (>3.5 g/24 h), edema, and hyperlipidemia.⁹ There are a variety of pathological types in NS, but there is

Table 1
The demographic data of enrolled patients ($\bar{x} \pm s$).

Item	Sex		Age (y)		Educational background	
	Men	Women	>60	≤60	Middle school	Other
N (%)	126 (53.6%)	109 (46.4%)	26 (11.1%)	209 (88.9%)	216 (91.9%)	19 (7.1%)
DI (mo)	2.1 ± 0.3	1.9 ± 0.4	2.7 ± 0.5	1.3 ± 0.8*	1.4 ± 0.1	2.6 ± 0.6*

* $p < 0.05$ in age, ≤60 years versus >60 years.

* $p < 0.05$ in educational background, ≥ middle school versus other.

DI = duration of illness.

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