

Original Article

Prospective evaluation of preoperative concerns for Chinese patients with spinal degenerative disease

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Abstract: Objective of this study is to analyze preoperative concerns of patients suffering from spinal degenerative disease in a Chinese population. A total of 94 patients with spinal degenerative disease were included, and they were divided into four groups: male and female group, older (≥ 60 year-old) and younger group (< 60 year-old). Questionnaire was designed through patients counseling, preliminary formulation, pilot test and final revision. Each patient was required to select three items of greatest concern. "Attention rate" (AR) was defined as ratio of selected times of one item upon case number within the group. AR of three most concerned items between male and female group, as well as older and younger group were compared and analyzed. All participants selected "recurrence of symptoms following operation" (41/94), "clinical outcome" (35/94) and "postoperative rehabilitation and daily activity" (30/94) as their three top items of concern. Both male and female groups selected "recurrence of symptoms following operation" (22/47, 19/47), "clinical outcome" (21/47, 14/47), "postoperative rehabilitation and daily activity" (15/47, 15/47) and "limb paralysis" (13/47, 14/47) as their most concerned items, revealing no statistical difference ($P > 0.05$). Older group chose "clinical outcome" (17/46) as their most concerned item, followed by "limb paralysis" (14/46), "postoperative rehabilitation and daily activity" (14/46) and "recurrence of symptoms following operation" (12/46). Younger group chose "recurrence of symptoms following operation" (29/48), "clinical outcome" (18/48) and "postoperative rehabilitation and daily activity" (16/48) as their three top concerned items. AR of "recurrence of symptoms following operation" between older and younger group demonstrated statistical difference ($P < 0.001$), while AR of remaining items of greatest concern between both groups were not statistically different ($P > 0.05$). For Chinese patients, high level concerns are associated with surgical outcome and most of them reveal no gender-associated or age-associated difference. Assessing preoperative concerns empowers better preoperative counseling between surgeons and patients and more informed decision for patients.

Keywords: Concern, preoperation, spine, degenerative disease

Introduction

Although there have been remarkable developments in surgical techniques for spinal degenerative disease [1-3], outcomes of surgery still have some limitations and not all patients report satisfactory recovery. Because of different views of potential risks and benefits for surgery, there may be less consideration of patient-reported concerns in general, thus leading to an increasing levels of concern and anxiety for patients [4, 5]. Previous studies have demonstrated preoperative concern and anxiety can affect postoperative outcome negatively [6-8]. Therefore, elucidating preoperative concerns of patients suffering from spinal degenerative disease is of crucial importance

for the sake of improved surgeon-patient communication, more informed and holistic decision-making, as well as satisfying postoperative outcomes. Aim of this study is to analyze their preoperative concerns prospectively in a Chinese population and to evaluate the difference by gender and age.

Materials and methods

General data

During October 2014 to January 2015, a total of 94 patients suffering from spinal degenerative disease were enrolled in this study. Their ages ranged from 23 to 84 year-old, averaging for (56.3 ± 14.9) year-old. Their diagnoses were

Questionnaire of Preoperative Concerns for Patients

Requiring Spinal Surgery

- (1) Limb paralysis
- (2) Hospitalization expense
- (3) Professionalism and reputation of division
- (4) Surgeon's popularity
- (5) Attitude towards me from medical staff
- (6) Explanation of disease course, treatment and prognosis from medical staff
- (7) Clinical outcome
- (8) Life risk
- (9) Possibility of failed surgery
- (10) Recurrence of symptoms following operation
- (11) Postoperative pain
- (12) Wound healing and postoperative scarring
- (13) Living condition in ward
- (14) Arrangement of the proposed operation for me
- (15) Postoperative rehabilitation and daily activity
- (16) Others

Please identify three items which you are most concerned about and tick them.

Figure 1. The final questionnaire used in the study.

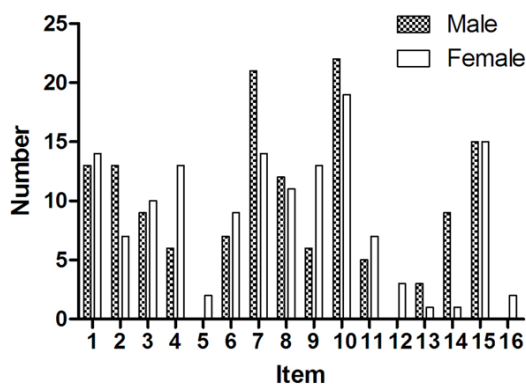


Figure 2. Comparison of questionnaire items between male and female group.

as follows: lumbar disc herniation for 38 cases, lumbar canal stenosis for 30 cases, lumbar spondylolisthesis for 13 cases, discogenic back pain for 8 cases, cervical spondylotic radiculopathy for 5 cases. All cases had disease duration of more than three months. Patients who were illiterate, whose first-language was not Chinese, or who had undergone any surgery previously were ruled out. This study was approved by institutional ethic committee of the hospital.

Questionnaire design

Based on previous method [5], we modified some procedures. A set of 15 patients considering their first spinal surgery were randomly selected and interviewed by one senior surgeon systematically to determine their concerns related to the proposed operation. Each interview consisted of two questions: "what are your concerns related with this operation?" and "which one is your greatest concern?", and each participant was required to give answers as much as possible. The interviewer recorded their responses objectively without further discussion to avoid

potential bias, and then the research team reviewed their responses seriously and created questionnaire items reflecting as much concerns as possible. Once preliminary questionnaire was designed, it was subjected to pilot test. A total of another 20 patients with spinal degenerative disease were randomly asked to complete this questionnaire, while following the completion, all of them were requested to explain how they interpreted these items and why they chose certain ones. Participants were encouraged to comment on any item which they considered not addressed clearly by this questionnaire and add new items to it. After pilot test, some revision was made and final

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Table 1. Top concerned items between male and female group

Item	Male group	Female group	P value
Recurrence of symptoms following operation	22/47	19/47	0.533
Clinical outcome	21/47	14/47	0.135
Postoperative rehabilitation and daily activity	15/47	15/47	1.000
Limb paralysis	13/47	14/47	0.820

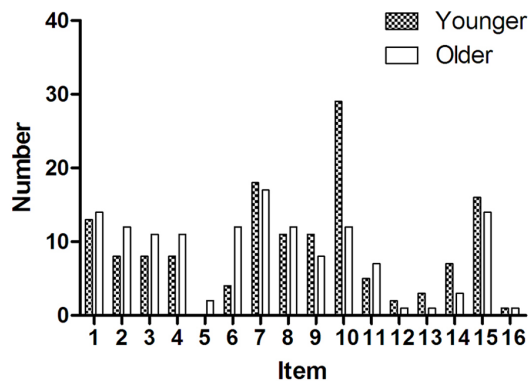


Figure 3. Comparison of questionnaire items between younger and older group.

version of the questionnaire was formulated through group consensus (**Figure 1**). It consisted of three specific groupings: concerns related to surgical outcome, concerns about surgical risk and concerns for others. In order to minimize possible influence of item order on patients' choice, its orders were randomized to be generated.

Research protocol

During preoperative counseling between surgeons and patients, patients qualified for the inclusion criteria had a thorough discussion with surgeons about surgical benefits, risks, possible alternatives and purpose of this study. Those who volunteered to participate were asked to choose three items of greatest concern independently without any interference from others. On the morning of operation day, these patients were required to finish the same questionnaire for test-retest reliability. Upon completion, the independent assessor verified determined items compared with previous choices to see whether there was any difference. If differences were observed, then patients would be asked to confirm their chosen items. Purpose of test-retest model is to ensure reliability of their responses. All 94

cases were divided into four groups according to gender (male group and female group, either for 47 cases) and age (older group: ≥ 60 year-old, 46 cases; younger group: < 60 year-old, 48 cases). "Attention rate" (AR) of one item was calculated as follows: chosen times/case number within the group. Three

items of greatest concern for 94 participants was observed, and AR of three most concerned items between both groups were compared.

Statistical analysis

Statistical data was assessed using SPSS version 17.0. For categorical data, namely AR of three most concerned items between male and female group, as well as older and younger group, two-tailed Pearson Chi-Square test was utilized. In this study, $P < 0.05$ was considered statistical significance.

Results

For these 94 patients, they selected "recurrence of symptoms following operation" (41/94) as most concerned item, followed by "clinical outcome" (35/94) and "postoperative rehabilitation and daily activity" (30/94). **Figure 2** reflected selected results of male and female groups. Male group chose "recurrence of symptoms following operation" (22/47), "clinical outcome" (21/47) and "postoperative rehabilitation and daily activity" (15/47) as their three top concerned items. While female group selected "recurrence of symptoms following operation" (19/47), "postoperative rehabilitation and daily activity" (15/47), "clinical outcome" (14/47) and "limb paralysis" (14/47) as their most concerned items. AR of these items between both groups demonstrated no statistical significance ($P > 0.05$, **Table 1**). Meanwhile, **Figure 3** showed selected results of older and younger groups. Three most concerned items chosen by older group were "clinical outcome" (17/46), "limb paralysis" (14/46) and "postoperative rehabilitation and daily activity" (14/46). However, younger group chose "recurrence of symptoms following operation" (29/48) as top concerned items, followed by "clinical outcome" (18/48) and "postoperative rehabilitation and daily activity" (16/48). Statistical analysis revealed obvious significance in term of

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Table 2. Top concerned items between older and younger group

Item	Older group	Younger group	P value
Clinical outcome	17/46	18/48	0.831
Limb paralysis	14/46	13/48	0.820
Postoperative rehabilitation and daily activity	14/46	16/48	0.658
Recurrence of symptoms following operation	12/46	29/48	<0.001

“recurrence of symptoms following operation” between both groups ($P < 0.001$), while other chosen items were not proven statistical significance between older and younger group ($P > 0.05$, **Table 2**).

Discussion

For patients suffering from impaired daily activity due to spinal degenerative disease, it is important not only to achieve image-confirmed improvement but also increased motion function and pain relief. For postoperative outcome can be negatively affected by preoperative concern because of anxiety [6, 7], lack of sufficient and reliable communication between surgeons and patients, along with misunderstanding treatment goal by patients due to unclear explanation from medical staff may exacerbate preoperative anxiety, causing higher level of concern and leading to decreased postoperative satisfaction. Thus, assessing preoperative concerns accurately and counseling with patients effectively should be highlighted so that patients are more likely to understand the nature of disease, as well as anticipated surgical goal and possible risks. Besides, more cooperation and active interaction between surgeons and patients may be fostered, benefiting for postoperative rehabilitation.

In this study, AR difference between males and females is not observed. Both choose “recurrence of symptoms following operation” as greatest concern, followed by “clinical outcome” and “postoperative rehabilitation and daily activity”, while for females, “limb paralysis” is another aspect causing great concern. This is similar to results of previous study [4]. For older people, their greatest concern is “clinical outcome”, while younger people selects “recurrence of symptoms following operation” as their most concerned aspect. The reason of selection difference may arise from younger patients’ afraid of revision operation because

of their socioeconomic status in Chinese society. If younger patients expend too much time and money in treating disease, they would be too exhausted to earn money, leading to potential decrease of socioeconomic status. Other aspects between older and younger people don’t reveal statistical difference,

such as “clinical outcome”, “limb paralysis” and “postoperative rehabilitation and daily activity”. Overall, most selected items between males and females, as well as older and younger people are same, revealing preoperative concerns are of no difference associated with gender and age. All these chosen items are focused on postoperative symptom relief, showing anxiety about unclear surgical outcome perceived by patients, so relief from pain and improved postoperative motion ability play pivotal roles in ensuring patient’s satisfaction. It is imperative that surgeons communicate with patients about proposed surgeries in detail at the beginning of hospitalization and patients understand the nature and limitations of their impending surgeries.

This questionnaire was formulated through systematic patient interview, objective analysis of their responses, pilot test and test-retest assessment, in an effort to reflect a board spectrum of concerns held by patients. Besides, its item order was randomly generated, benefiting for removing potential influence of pre-response bias [5]. These measures allow a more comprehensive and systematic design of the questionnaire. For individual patient, we also need to understand that he/she has his/her own specific concerns, so that communication with individual patient should be targeted to these concerns. This would assist us with more thorough surgeon-patient discussion in order to relieve their preoperative worries. Upon interpreting results of this study, some limitations should be mentioned. First, sample size is relatively small and all cases were within just one institute, not reflecting overall concern distribution across a broader area. Second, although designed through stringent methodology, this questionnaire may not cover all preoperative patient-related concerns. Third, patients’ responses to questions can be influenced by how and what information is given to them [9, 10]. Thus, other sources of information related

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to the disease and operation, such as Internet and unintentional comments from medical staff, may induce certain bias [5]. However, all these drawbacks are not considered to generate obvious influences on final results.

This study emphasizes the importance of comprehending patient's preoperative concerns by surgeons, so surgeons should pay more attention to their concerns and relieve their worries through preoperative counseling. Establishing a more trusting relationship between surgeons and patients benefit for postoperative rehabilitation, and it can also empower patients to formulate realistic expectations and make informed decisions for surgery [4]. More postoperative satisfaction can be achieved if we analyzed their concerns more thoroughly and addressed those proactively through validated and systematic questionnaire.

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Disclosure of conflict of interest

None.

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