

Peer Review File

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Reviewer A

All patients should have an MDT led postoperative course. What you have described is an enhanced recovery pathway.

It is not clear if the "none MDT" patients were an historical cohort- if so then this should be clearly stated.

Reply: Many thanks for reviewer's careful reading and comments. The patients in these 2 groups were prospective cohort. We had modified our text as advised (see Page 4, line 2)

Reviewer B

This is a very long and unnecessarily long paper, so I would like to suggest the authors to consider to describe the details of the MDT model in supplementary file.

Reply: Many thanks. We have uploaded the details of the MDT model in supplementary file.

First of all, my major concern is the focus of this study, which seems to be the development of the MDT model because the authors used many paragraphs to describe its content. However, the effectiveness of this model should be the primary focus because an ineffective model is not deserved to be reported and effectiveness is of great clinical relevance. I suggest the authors to completely rewrite the paper to report it as a RCT and provide more details of the methodology of this RCT. Accordingly, the reporting guideline should not be the STROBE, please consider CONSORT.

Reply: Thank you for your advice. We rewrote the paper to report the paper as a RCT. We had modified our text as advised.

Second, my general comments for this paper are provided as below.

1) The title needs to indicate the clinical research design of this study, a RCT.

Reply: Thank you. We had revised the Title as "Development and application of a specialist nurse-led multidisciplinary team model in the perioperative care of patients undergoing simultaneous pancreas and kidney transplantation: Randomized controlled trial".

2) The abstract needs to describe the knowledge gap in the MDT for perioperative SPKT and why a specialist nurse-led MDT model is potentially effective in the background, describe the inclusion of subjects, randomization method of the two interventions, outcome assessment, and follow up procedures in the methods, describe the subjects who completed the study and quantify the findings by reporting the outcomes of the two groups and accurate P values for the statistical comparisons in the results.

Reply: Thank you very much. We appreciate it very much for this good suggestion, and we

have done it according to your ideas. Simultaneous pancreas and kidney transplantation (SPKT) is an effective treatment for patients with diabetes mellitus and renal failure. However, experiments exploring nurse-led multidisciplinary team management during the perioperative management of patients undergoing SPKT are still sparse and limited. We had modified our text as advised (see Page 2).

In this prospective cohort study, patients who underwent SPKT at our center from September 2016 to December 2021 were enrolled if they met the inclusion (Figure 1). To be eligible for inclusion, patients had to meet the following inclusion criteria: (I) aged 18–80 years; (II) meeting the SPKT criteria stipulated by the indications and contraindications for SPKT in the *Chinese Guidelines on Kidney Transplantation* and *Chinese Guidelines on Pancreatic Transplantation* and having been approved by the ethics committee; (III) being able to tolerate surgery, as assessed by preoperative organ function tests; (IV) having signed informed consent forms (see page 4, line 2-9). The eligible patients were divided into 2 groups using a random number table. We had modified our text as advised (see page 4, line 15-16).

As to quantify the outcomes of the two groups, the measurement data were expressed as mean \pm standard deviations (SD) and analyzed using t-test and analysis of variance (ANOVA). The qualitative data were compared using chi-square test on rows and columns; for data with an expected frequency of < 1 , the Fisher's exact probability test was performed. The normality of data distributions was examined using the Kolmogorov-Smirnov method. A P value of < 0.05 was regarded as statistically significant. We had modified our text as advised (see page 6, line 18-25).

3) In the introduction of the main text, please review the content of the available MDT management model for SPKT in the literature, describe and analyze their similarities and differences, have comments on their limitations and knowledge gaps. In the case of China, please explain why a specialist nurse-led MDT model is potentially effective and important, i.e., why not physician-led. Please also analyze why the nurse-led MDT model is effective in terms of postoperative complications, hospital stay, total hospitalization cost, readmission rate, and postoperative nursing quality outcomes.

Reply: Many thanks. Since multiple departments are involved during the perioperative management of SPKT, the multidisciplinary team (MDT) approach has become one of the important medical modes globally as it can integrate medical resources and contribute to improved outcome. Besides, nurses have been playing indispensable roles in all areas of SPKT management. They are healthcare professionals who share disease-related information, deliver health education, and facilitate patient involvement, which provides the skills individuals need to adhere to the guidelines, thereby enhancing the effects on their health. In fact, Multidisciplinary team approach as a novel pathway has been implemented into various fields over the years, including cancer, heart failure, diabetes mellitus as well as cardiac arrhythmia like Atrial fibrillation. Therefore, a specialist nurse-led MDT model is potentially effective and important. We had modified our text as advised (see Page 3, line 13-20).

4) In the methodology of the main text, please describe the inclusion and exclusion criteria for the subjects, the calculation of sample size estimation, randomization methods, blinding of outcome assessment, follow up procedures, and details of outcome methods. Please describe how the MDT model was developed because the authors only described what the MDT model is but did not explain why it was developed in the current way. For the outcome of total hospitalization cost, the authors should clearly indicate that this is direct medical cost, but if the authors consider to cost of the MDT services, the cost would be much higher.

Reply: Thank you for your advice. As described above, in this prospective cohort study, patients who underwent SPKT at our center from September 2016 to December 2021 were

enrolled if they met the inclusion (Figure 1). To be eligible for inclusion, patients had to meet the following inclusion criteria: (I) aged 18–80 years; (II) meeting the SPKT criteria stipulated by the indications and contraindications for SPKT in the *Chinese Guidelines on Kidney Transplantation* and *Chinese Guidelines on Pancreatic Transplantation* and having been approved by the ethics committee; (III) being able to tolerate surgery, as assessed by preoperative organ function tests; (IV) having signed informed consent forms (see page 4, line 2-9). The eligible patients were divided into 2 groups using a random number table. We had modified our text as advised (see page 4, line 15-16).

A conservative sample size estimate was calculated based on the incidence of Gastrointestinal bleeding from our pilot study. We calculated that 99 patients in both the control group and the intervention group would detect an expected decrease from 31% to 15%, using a two-tailed alpha of 0.05 and a power of 0.80 (see page 6, line 14-17). A total of 218 eligible patients were divided into 2 groups using a random number table. We had modified our text as advised (see page 4, line 15-16).

In our country, experiments exploring nurse-led multidisciplinary team management during the perioperative management of patients undergoing SPKT are still sparse and limited, and we developed the model basing on nursing practice and clinical nursing management experience in China and internationally. We had modified our text as advised (see page 3, line 13-24).

For the outcome of total hospitalization cost, we describe it as direct medical cost. We had modified our text as advised (see page 7, line 17).

5) The conclusion should be made with cautions because of this. In statistics, please describe the data analytic subsets, handling of missing data, test of the normality of outcome data, and ensure $P < 0.05$ is two-sided.

Reply: Many thanks. The measurement data were expressed as mean \pm standard deviations (SD) and analyzed using t-test and analysis of variance (ANOVA). The qualitative data were compared using chi-square test on rows and columns; for data with an expected frequency of < 1 , the Fisher's exact probability test was performed. The normality of data distributions was examined using the Kolmogorov-Smirnov method. A P value of < 0.05 was regarded as statistically significant. We had modified our text as advised (see page 6, line 18-25).