Informed consent

Study name: Effect of Goal-Directed Fluid Therapy on the Postoperative Outcome in Head and Neck Cancer Surgery: A Randomized Controlled Trial

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Department: Department of Anesthesiology

Research institution: Beijing Tongren Hospital, Capital Medical University; Beijing Chest Hospital, Capital Medical University

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Dear patients:

We will invite you to participate in a clinical study, because you may meet the conditions for this study. This Informed Consent will introduce the purpose, process, benefits, risks of this study to you. Before you decide whether to participate in this study, please read the following as carefully as possible.

When the researcher explains the content of this Informed Consent Form to you, you can ask questions at any time and ask him/her to explain what you don't understand. You can discuss with your family, friends and your doctor before making a decision.

1. Why is this study conducted?

Postoperative complications have become the main cause of prolonged hospitalization and reduced postoperative survival rate among surgical patients. Both excessive or insufficient perioperative fluid input can result in organ dysfunction, delay the recovery of organ function, and increase the incidence of postoperative complications. As a central link of perioperative anesthesia management, fluid therapy is a crucial measure to ensure the patient's life safety during surgery. Goal-directed fluid therapy (GDFT) can individualize perioperative fluid infusion by monitoring dynamic hemodynamic indicators, which can increase oxygen delivery and ensure optimal organ perfusion. GDFT has been reported to reduce the incidence of postoperative complications and mortality, shorten the hospital stay, and improve the outcome in non-cardiac surgical patients. However, most clinical studies mainly focused on patients who have undergone major abdominal surgery, there is still a lack of high-quality evidence to determine whether GDFT has an impact on the occurrence of postoperative complications in patients after head and neck cancer surgery. Therefore, we designed this study is to evaluate whether GDFT can reduce the occurrence of serious postoperative complications and shorten the postoperative hospital stay, compared with

a standard conventional fluid therapy in patients undergoing head and neck cancer surgery.

2. Who will be invited to participate in this study?

We will recruit 340 patients who scheduled for head and neck cancer surgery in the Beijing Tongren Hospital, Capital Medical University.

Inclusion Criteria:

1. Adult patients (Age≥18)
2. Scheduled to undergo head and neck cancer surgery (including nasopharyngeal carcinoma, laryngocarcinoma, hypopharyngeal carcinoma, and other head and neck malignancies, but not thyroid cancer) with an expected duration of 2 hours or longer
3. Agree to receive invasive artery blood pressure monitoring

Exclusion Criteria:

1. American Society of Anesthesiologists (ASA) classification > IV
2. Palliative surgery was performed for the terminal tumors
3. Microlaryngoscopic laser surgery or endoscopic surgery
4. Underwent major thoracic or abdominal surgery within 30 days
5. Regular renal replacement therapy is required
6. NYHA grade > 3 or ejection fraction <30%
7. Lung disease does not tolerate the tidal volume by 8 ml/kg
8. Atrial fibrillation
9. Unable to give informed consent
10. pregnant or lactating woman
11. Emergency surgery

3. How was the study conducted?

This study is a prospective randomized controlled study. All participants will be randomly divided into two groups: GDFT group (group G) and conventional fluid therapy group (group C). Patients will be randomized allocated on one-to-one basis to either into group C or group G using a closed envelope system. A research personnel

otherwise not involved in the study prepared and sealed the opaque, consecutively numbered envelopes.

In group G, stroke volume variation (SVV) ⩽ 12% and cardiac index (CI) ⩾ 2.5L/min/m^2 are the goals of fluid therapy, while the mean arterial pressure (MAP) are kept between 65 and 90 mmHg. 5mL/kg of crystalloids will be infused during induction period, followed by an infusion rate of 2 mL/kg/h to supplement the physiological requirements. If SVV > 12% for more than 5 min, a 250 mL bolus of colloid is given. Another 250 ml bolus of colloid is administrated if SVV was still more than 12% or SV decreased over 10%. If the CI < 2.5 L/min/m^2, inotropes are used to achieve this minimum CI, serving as a safety parameter to prevent the patient from being exposure to a low cardiac output state. If SVV and CI reached the s target range but MAP could not maintain the expected level, vasopressors were started. Assess the patients every 5min intraoperatively to ensure that all parameters adhere to the target range according to the study algorithm.

In group C, fluid management will be carried out according to the clinical practice routine, maintaining MAP≥65mmHg and urine output ≥0.5ml/kg/h, intraoperatively. The fluid supplementation for the induction period and physiological requirements uses the same strategy as in group G. When the anesthesiologist empirically determines that the fluid infusion is sufficient but MAP does not maintain the expected level, vasopressor or inotropic drugs are given to maintain the blood pressure.

The follow-up contents included postoperative complications, the length of hospital stay after surgery, cost of hospitalization, and quality of recovery score. We will follow up long-term prognostic indicators by telephone at least on years after surgery, including mortality, complication rate, tumor recurrence rate, etc.

4. What are the possible benefits of your participation in this study?

There was no direct benefit from patient participation in this study. However, if applying GDFT to patients who undergo head and neck cancer surgery can reduce the occurrence of serious complications, it will greatly shorten the postoperative hospital length, reduce the cost of hospitalization, and improve the postoperative quality of life.

5. Possible risks and inconvenience of your participation in this study?

In this study, you may receive fluid challenge therapy during the procedure, which carries the risk of intolerance to fluid challenge. This intolerance can be manifested as the heart may struggle to handle the sudden increase in preload during fluid administration, leading to circulatory system symptoms such as heart failure and pulmonary edema. In case of circulatory system symptoms, it is crucial to promptly cease the fluid challenge and administer vasodilators as needed.

6. How does your participation in this study affect your daily life?

We will give you a telephone follow-up within 1 year after the operation, which will take up some of your time and may also cause you trouble or inconvenience.

Please consult your study doctor before taking any new prescription drugs. In consideration of your safety and to ensure the effectiveness of the research results, you cannot participate in any other clinical research on drugs and medical devices during the research period.

7. If you do not participate in this study, are there any other treatment options?

You can choose not to participate in this study, which will not have any adverse effect on your access to conventional treatment. Whether you participate or not, the anesthesia methods of all patients are basically the same, which are commonly used in clinical practice.

8. Who is responsible for your expenses for participating in this study?

This study is not funded, and you will not get economic compensation. The data information required for this trial are the results of routine examinations and tests before and during the operation, without additional costs.

9. Are you compensated for participating in this study?

You will not be paid for participating in this study.

10. What if you have a study related injury?

The doctor will do his best to prevent and treat possible injuries caused by this study. If your health is harmed by participating in this study, please inform the researcher, and we will take necessary medical measures free of charge. According to the relevant laws and regulations of China, if you have any injury related to this study,

the research institution will bear the relevant treatment costs and provide corresponding economic compensation.

11. Under what circumstances might this study be terminated prematurely?

1. The participate can voluntarily withdraw from the study at any time;

2. Withdrawal and termination of observation due to serious adverse events;

3. The participate did not perform such operation or changed the operation method during the operation;

4. Other reasons that the investigator thinks it is impossible to continue the trial treatment.

12. Do you have to participate in and complete this study?

Whether to participate in the study depends entirely on your wishes. You can refuse to participate in this study, or withdraw from this study at any time during the study, which will not affect the relationship between you and the doctor, nor will it affect the loss of your medical or other benefits. For your best interests, the doctor or researcher may suspend your participation in this study at any time during the study. During the study, if there is any new information that may affect your decision to continue to participate in the study, we will inform you in a timely manner.

13. Will your personal information be kept confidential?

Your medical records (research medical records/CRF, laboratory test reports, etc.) will be completely saved in the hospital where you visit. The doctor will record the results of tests and other examinations on your medical record. The research data will be kept in a locked filing cabinet for the reference of relevant researchers only. When necessary, the government supervision department and the ethics committee can access your personal data according to the regulations. We will make every effort to protect the privacy of your personal medical data to the extent permitted by law. According to medical research ethics, except for personal privacy information, the test data will be available for public inquiry and sharing. The inquiry and sharing will be limited to web-based electronic databases. Your participation in this study and your personal data in this study are confidential. When this research result is published, your identifiable identity information will not be disclosed.

14. Who can you contact if you have questions or difficulties?

If you have any questions or injuries related to this study, please contact the project leader.

If you have any questions related to your own rights, you can contact the Ethics Committee of Beijing Tongren Hospital, Capital Medical University.

Bookmark page of informed consent

Statement of subject

I know the purpose, process, risks and benefits of this study.

I have enough time and opportunity to ask questions, and my questions have been answered satisfactorily.

I know who I can contact when I have the questions, concerns, suggestions about this study, or want further information.

I have carefully read this informed consent form and agree to participate in this study.

I know that I can withdraw from this study at any time during the study without any reason.

I will get a copy of this informed consent form, which contains the signatures of me and the researcher.

Signature of the subject (In block letters)	Date
Signature of legal guardian (In block letters) (If necessary, please indicate the relationship with the subject)	Date
Signature of impartial witness (In block letters) (If necessary)	Date

Statement of investigator

"I have informed the subject of the purpose, process, risks and benefits of this study, given the subject enough time to read this Informed Consent Form or discuss with others, and answered questions about the study in detail; I have informed the subject of his contact information when encountering problems related to the study; I have informed the subject that he can withdraw from the study at any time; I have informed the subject that he will receive a copy of this Informed Consent Form, which contains I signed with him/her."

_____ _____

Signature of researcher who obtained informed consent (In block letters)

Date

_____

telephone number