

Research Theme: The Effect of Esketamine Combined with Dexmedetomidine on Postoperative Recovery Quality in Patients Undergoing Thoracoscopic Surgery

Ethical Review Number: (2025) Ethical Review L No. 81

Document Date: March 27, 2025

Informed Consent Form for Participants

Part One: Information for Participants

We are about to conduct a study on "The Impact of Esketamine Combined with Dexmedetomidine on the Postoperative Recovery Quality of Patients Undergoing Thoracoscopic Surgery". Your condition may meet the inclusion criteria for this study, so we would like to invite you to participate. This informed consent form will introduce to you the purpose, procedures, benefits, risks, inconveniences or discomforts of the study. Please read it carefully and make a decision on whether to participate after due consideration. When the researcher explains and discusses the informed consent form with you, you can ask questions at any time and ask him/her to explain the parts you do not understand. You can also discuss with your family, friends and your doctor before making a decision.

If you are currently participating in other clinical studies, please inform your study doctor or researcher.

The project leader of this research is Ren Shanna from the First Affiliated Hospital of Kunming Medical University. The sponsor/funder of this research is the First Affiliated Hospital of Kunming Medical University.

Why conduct this research?

Video-assisted thoracoscopic surgery (VATS) has wide applicability, including the diagnosis and treatment of lung cancer, and has gradually replaced traditional thoracotomy. Thoracoscopic surgery must routinely employ one-lung ventilation techniques. During one-lung ventilation, various pathophysiological changes may occur due to mechanical injury, lung collapse, imbalance of ventilation-perfusion ratio in the lungs, and ischemia-reperfusion, leading to the release of a large number of inflammatory factors and causing local and systemic inflammatory responses, increasing postoperative complications and affecting patient prognosis. In addition, most patients undergoing thoracoscopic surgery experience acute postoperative pain. If acute postoperative pain is not adequately controlled, it may develop into chronic pain, affecting the quality of postoperative recovery. Currently, opioids are the main drugs for treating moderate to severe postoperative pain. However, opioid-related adverse events may also affect the quality of postoperative recovery. The use of multimodal analgesia for postoperative pain management can control pain and reduce the demand for opioids.

Esketamine, a newly marketed intravenous anesthetic in China in recent years, is the right isomer of ketamine and a non-competitive antagonist of N-methyl-D-aspartate (NMDA) receptors. Compared with ketamine, esketamine has higher potency, faster recovery time and fewer adverse reactions. Some clinical studies have shown that the

administration of esketamine can reduce the intensity of postoperative pain and the demand for postoperative analgesics. It has been found that esketamine reduces the consumption of opioids and hyperalgesia after surgery. Dexmedetomidine (DEX) is a selective α_2 -adrenergic receptor agonist with sedative and analgesic effects. When esketamine is used in combination with dexmedetomidine, the sympathomimetic effects of esketamine can to some extent counteract the sedative effects of dexmedetomidine.

The inhibitory effect on the sympathetic nervous system prevents bradycardia or hypotension when dexmedetomidine is used as a single drug. Meanwhile, dexmedetomidine can limit the tachycardia and hypertension caused by esketamine. The combination of the two drugs achieves complementary advantages and maintains relatively stable hemodynamics.

Who will be invited to participate in this study?

The subjects who accept this study should meet the following conditions:

- (1) aged 18 to 65;
- (2) BMI: 18 - 30 kg/m²
- (3) ASA classification I to III;
- (4) Patients undergoing thoracoscopic surgery;

- (5) No contraindications to the relevant drugs;
- (6) Those who have normal abilities to express, communicate and understand;
- (7) Both the patient and the family members agreed to participate in this study and signed the informed consent form.

How many people will participate in this research?

This research project plans to recruit 120 subjects.

How was the research conducted?

Patients scheduled for elective thoracoscopic surgery under general anesthesia at the First Affiliated Hospital of Kunming Medical University from December 2024 to December 2025 were selected. Preoperative relevant examinations were completed, and patients not meeting the inclusion criteria were excluded. The patients' age, gender, ASA classification, height, and weight were recorded before the operation. The patients were divided into three groups: Group D, Group DE1, and Group DE2. In Group D, a loading dose of 0.5 $\mu\text{g}/\text{kg}$ of dexmedetomidine was administered 10 minutes before the operation, and it was maintained at 0.4 $\mu\text{g}/\text{kg}/\text{h}$ until 30 minutes before the end of the operation. In Group DE1, a loading dose of 0.5 $\mu\text{g}/\text{kg}$ of dexmedetomidine was administered 10 minutes before the operation, and it was maintained at 0.4 $\mu\text{g}/\text{kg}/\text{h}$ until 30 minutes before the end of the operation. Additionally, esketamine at a dose of 0.2 mg/kg was

administered 1 minute after anesthesia induction and maintained at 2 $\mu\text{g}/\text{kg}/\text{min}$ until 30 minutes before the end of the operation. In Group DE2, a loading dose of 0.5 $\mu\text{g}/\text{kg}$ of dexmedetomidine was administered 10 minutes before the operation, and it was maintained at 0.4 $\mu\text{g}/\text{kg}/\text{h}$ until 30 minutes before the end of the operation. Additionally, esketamine at a dose of 0.2 mg/kg was administered 1 minute after anesthesia induction and maintained at 4 $\mu\text{g}/\text{kg}/\text{min}$ until 30 minutes before the end of the operation. The observation indicators were: (1) QoR-15 scale scores before the operation, on the first day after the operation, and on the third day after the operation; (2) intraoperative hemodynamic parameters (blood pressure and heart rate) at T0 (before anesthesia), T1 (at intubation), T2 (at skin incision), T3 (at the end of the operation), T4 (awakening), and T5 (extubation); (3) awakening time and PACU stay time; (4) postoperative pain VAS scores at 2 hours, 6 hours, 12 hours, and 24 hours after the operation; (5) postoperative sedation Ramsay scores at 2 hours, 6 hours, 12 hours, and 24 hours after the operation; (6) the number of times the postoperative analgesic pump was pressed, the use of rescue analgesics, and the use of antiemetics; (7) respiratory variables (respiratory rate, PaO_2 , PaCO_2) when inhaling air in the PACU; (8) the occurrence of adverse reactions such as respiratory depression, bradycardia, excessive salivation, postoperative nausea and vomiting, dizziness, and hallucinations.

Among them, the definition of recovery time is the period from the end of the operation to the time when the patient opens their eyes upon being called; the definition of extubation time is the period from the cessation of anesthesia to the time when the patient's double-lumen endobronchial tube is removed; the hospital stay is the period from the day of the operation to the patient's discharge. Finally, the collected data will be statistically analyzed and compared.

What impact does participating in this study have on the daily life of the subjects?

All the procedures in this study will be conducted during your hospital stay. This study will not cause any adverse reactions after your surgery. If you have any questions about the tests and steps involved in the trial, please feel free to ask us. For your safety and to ensure the validity of the research results, you cannot participate in any other clinical studies related to drugs or medical devices during the study period.

What are the risks and adverse reactions for the subjects participating in this study?

The possible adverse reactions during the study period include: (1) toxic reactions to anesthetic drugs; (2) local hematoma, pneumothorax, etc. caused by puncture; (3) respiratory tract obstruction and respiratory depression, etc.; (4) circulatory fluctuations, etc. Your study doctor will monitor the side effects during the trial. If you experience any side effects during the trial, you should immediately report to your study

doctor. This is crucial. Your study doctor may give you antihypertensive drugs, antihypotensive drugs or other drugs to control the side effects. If you or your study doctor believe that you cannot tolerate these side effects, the study drug may be completely discontinued and you may withdraw from this study.

Other risks

If the research involves questionnaires, please explain the possible psychological discomfort that may arise, such as certain questions in the questionnaire might make you feel uncomfortable, and you can refuse to answer. If the research involves personal privacy issues, please explain the possible harm that may be caused. If personal private information is accidentally leaked, it may have adverse effects on your work, study and life.

What are the possible benefits for the participants in this study?

The benefits for the participants in this study include providing intraoperative lung protection and more stable anesthesia support. There is no direct monetary benefit for you to participate in this study. However, we hope that the information obtained from your participation in this study will benefit patients with the same condition as yours in the future.

If you do not participate in this study, are there any alternative treatment options available?

You have the option not to participate in this study, and this will not have any adverse impact on your access to conventional treatment. Currently, for your health condition, the conventional treatment methods include: administering other intravenous anesthetics based on experience during the surgery.

Is it necessary to participate in and complete this research?

Your participation in this research is entirely voluntary. If you do not wish to participate, you can decline, and this will have no negative impact on your current or future health care. Even if you agree to participate, you can change your mind at any time and inform the researchers that you wish to withdraw from the study. You will not be discriminated against or retaliated against for withdrawing from the trial, nor will it affect your access to normal medical services. When you decide to no longer participate in this study, please inform your study doctor in a timely manner. Your study doctor can provide advice and guidance on your health condition. According to the protocol's criteria for discontinuation/ withdrawal, inform the subjects of the circumstances under which their participation will be discontinued. The sponsor or regulatory authorities may also terminate this study during the research period. If the study is prematurely terminated, we will notify you promptly, and your study doctor will provide advice on your next treatment plan based on your health condition.

For subjects who withdraw from the study midway, for safety considerations, we have a final follow-up plan. You have the right to refuse. In addition, please return all unused study drugs to your study doctor. If new information related to your health and rights is discovered after your withdrawal, we may contact you again. After a subject withdraws, it should be made clear that no new data related to them will be collected in the future. And detailed explanations should be given to the subjects on how to handle the previously collected study data and the data of those who withdrew due to adverse reactions.

The cost of participating in this research

This study did not incur any additional costs. The trial drugs or devices were all included in the surgical anesthesia fees. The blood test fees related to the study were provided by the sponsor. The investigators received no compensation for lost wages or transportation, nor were they paid any remuneration.

How to handle research-related injuries?

If your health is harmed due to your participation in this study, please inform the researcher, Shan-na Ren, at 18987905915. We will take necessary medical measures. According to relevant regulations and laws in China, if any research-related harm occurs, the sponsor of this study, the First Affiliated Hospital of Kunming Medical University, will bear the corresponding medical expenses and provide appropriate economic compensation.

What do I need to do if I participate in the research?

Provide accurate information about your past medical history and current condition.

Tell the study doctor about any health problems you have during the study period.

Tell the study doctor about any new medicines, drugs, vitamins or herbs you take during the study period.

No medication or treatment, including prescription drugs and those available over the counter at pharmacies, should be taken without the permission of a research doctor.

Purchased medicines (including vitamins and herbal medicines).

Do not participate in other medical research.

Follow the guidance of the researchers and study doctors.

If you have any questions, please feel free to ask at any time.

Will the personal information of the subjects be kept confidential?

If you decide to participate in this study, your participation and personal information during the study will be kept confidential. All your information will be identified by a research number rather than your name. Information that can identify you will not be disclosed to members outside the research team, unless you give permission. All research team

members and the research sponsor are required to keep your identity confidential. Your file will be kept in a locked filing cabinet and accessible only to researchers. To ensure that the study is conducted in accordance with regulations, members of government regulatory authorities or ethics committees may, as required, review your personal information at the research site.

When the results of this study are published, no personal information about you will be disclosed.

New information related to the research?

During the course of the trial, we may obtain new information about the treatment. We will promptly inform you so that you can decide whether to continue participating in the study or withdraw.

Who should I contact if there are any problems or difficulties?

If you have any questions related to this research, please contact Dr. Ren Shanna at 18987905915 or Dr. Qian Jinqiao at 18064887972. If you have any questions regarding the rights of the subjects, you may contact the Ethics Committee of the First Affiliated Hospital of Kunming Medical University at 0871-65328584.

Part Two: Informed Consent Signature Page

Informed Consent Statement for Participants

I have been informed of the background, purpose, procedures, risks and benefits of the research project titled "The Impact of Esketamine Combined with Dexmedetomidine on Postoperative Recovery Quality in Patients Undergoing Thoracoscopic Surgery". I have had sufficient time and opportunity to ask questions, and I am satisfied with the answers. I have also been informed of whom to contact if I have any questions or need further information. I have read this informed consent form and agree to participate in this research. I understand that I can withdraw from the study at any time without giving any reason. I have been informed that I will receive a copy of this informed consent form with my and the researcher's signatures.

Signature of the subject:

Date:

I confirm that the information in the informed consent form has been correctly explained and that the subject and/or the subject's legal representative have understood it clearly. The subject has voluntarily agreed to participate in this study.

Fair witness signature:

Date:

Researcher's Statement of Declaration

I have informed the subject (and his/her legal representative) of the research background, purpose, procedures, risks and benefits of the project titled "The Impact of Esketamine Combined with Dexmedetomidine on Postoperative Recovery Quality in Patients Undergoing Thoracoscopic Surgery". I have given him/her sufficient time to read the informed consent form, discuss with others, and answer any questions he/she has about the study. I have informed the subject of the contact information in case of any problems. I have also informed the subject and the legal representative that he/she can withdraw from the study at any time during the research period without giving any reason.

Signature of the researcher:

Date:

Guardian's Informed Consent Form

Part One: Information for Guardians

We are about to conduct a study on "The Impact of Esketamine Combined with Dexmedetomidine on the Postoperative Recovery Quality of Patients Undergoing Thoracoscopic Surgery". Your ward's condition may meet the inclusion criteria of this study, so we would like to invite your ward to participate in this research. This informed consent form will introduce to you the purpose, procedures, benefits, risks, inconveniences or discomforts of the study. Please read it carefully and make a decision on whether to participate in the study after careful consideration. When the researcher explains and discusses the informed consent form with you, you can ask questions at any time and ask him/her to explain the parts you do not understand. You can also discuss with your family, friends and your doctor before making a decision.

If your ward is currently participating in other clinical studies, please inform the study doctor or researcher.

The project leader of this research is Ren Shanna from the First Affiliated Hospital of Kunming Medical University. The sponsor/funder of this research is the First Affiliated Hospital of Kunming Medical University.

Why conduct this research?

Video-assisted thoracoscopic surgery (VATS) has wide applicability, including the diagnosis and treatment of lung cancer, and has gradually replaced traditional thoracotomy. Thoracoscopic surgery must routinely employ one-

lung ventilation techniques. During one-lung ventilation, various pathophysiological changes may occur due to mechanical injury, lung collapse, imbalance of ventilation-perfusion ratio in the lungs, and ischemia-reperfusion, leading to the release of a large number of inflammatory factors and causing local and systemic inflammatory responses, increasing postoperative complications and affecting patient prognosis. In addition, most patients undergoing thoracoscopic surgery experience acute postoperative pain. If acute postoperative pain is not adequately controlled, it may develop into chronic pain, affecting the quality of postoperative recovery. Currently, opioids are the main drugs for treating moderate to severe postoperative pain. However, opioid-related adverse events may also affect the quality of postoperative recovery. The use of multimodal analgesia for postoperative pain management can control pain and reduce the demand for opioids.

Esketamine, a newly marketed intravenous anesthetic in China in recent years, is the right isomer of ketamine and a non-competitive antagonist of the N-methyl-D-aspartate (NMDA) receptor. Compared with ketamine, esketamine has higher potency, faster recovery time and fewer adverse reactions. Some clinical studies have shown that administration of esketamine can reduce the intensity of postoperative pain and the demand for postoperative analgesics. It has been found that esketamine reduces the consumption of opioids and hyperalgesia after surgery. Dexmedetomidine (DEX) is a kind of Selective α 2-adrenergic receptor agonists have sedative and analgesic effects. When esketamine is combined with dexmedetomidine, the sympathomimetic effects of

esketamine can counteract the inhibitory effect of dexmedetomidine on the sympathetic nervous system to a certain extent, preventing bradycardia or hypotension that may occur when dexmedetomidine is used alone. Meanwhile, dexmedetomidine can limit the tachycardia and hypertension caused by esketamine. The combination of the two drugs achieves complementary advantages and maintains relatively stable hemodynamics.

Who will be invited to participate in this study?

The subjects who accept this study should meet the following conditions:

- (1) Age: 18 to 65 years old
- (2) BMI: 18 - 30 kg/m²;
- (3) ASA classification I to III;
- (4) Patients undergoing thoracoscopic surgery;
- (5) No contraindications to the relevant drugs;
- (6) Those who have normal abilities to express, communicate and understand;
- (7) Both the patient and his/her family members agreed to participate in this study and signed the informed consent form.

How many people will participate in this research?

This research project plans to recruit 120 subjects.

How was the research conducted?

Patients scheduled for elective thoracoscopic surgery under general anesthesia at the First Affiliated Hospital of Kunming Medical University from December 2024 to December 2025 were selected. Preoperative relevant examinations were completed, and patients not meeting the inclusion criteria were excluded. The patients' preoperative age, gender, ASA classification, height, and weight were recorded. The patients were divided into three groups: D, DE1, and DE2. In group D, a loading dose of 0.5 $\mu\text{g}/\text{kg}$ of dexmedetomidine was administered 10 minutes before surgery, and maintained at 0.4 $\mu\text{g}/\text{kg}/\text{h}$ until 30 minutes before the end of the surgery. In group DE1, a loading dose of 0.5 $\mu\text{g}/\text{kg}$ of dexmedetomidine was administered 10 minutes before surgery, maintained at 0.4 $\mu\text{g}/\text{kg}/\text{h}$ until 30 minutes before the end of the surgery, and esketamine 0.2 mg/kg was given 1 minute after induction of anesthesia, maintained at 2 $\mu\text{g}/\text{kg}/\text{min}$ until 30 minutes before the end of the surgery. In group DE2, a loading dose of 0.5 $\mu\text{g}/\text{kg}$ of dexmedetomidine was administered 10 minutes before surgery, maintained at 0.4 $\mu\text{g}/\text{kg}/\text{h}$ until 30 minutes before the end of the surgery, and esketamine 0.2 mg/kg was given 1 minute after induction of anesthesia, maintained at 4 $\mu\text{g}/\text{kg}/\text{min}$ until 30 minutes before the end of the surgery. The observation indicators were: (1) QoR-15 scale scores before surgery, on the first and third postoperative days; (2) intraoperative hemodynamic parameters (blood pressure and heart rate) at T0 (before anesthesia), T1 (at intubation), T2 (at skin incision), T3 (at the end of surgery), T4 (awakening), and T5 (extubation); (3) awakening time and PACU stay

time; (4) postoperative pain VAS scores at 2, 6, 12, and 24 hours; (5) postoperative sedation Ramsay scores at 2, 6, 12, and 24 hours; (6) the number of times the postoperative analgesic pump was pressed, the use of rescue analgesics, and the use of antiemetics; (7) respiratory variables (respiratory rate, PaO₂, PaCO₂) when inhaling air in the PACU; (8) the occurrence of adverse reactions such as respiratory depression, bradycardia, excessive salivation, postoperative nausea and vomiting, dizziness, and hallucinations.

Among them, the definition of recovery time is the period from the end of the operation to the time when the patient opens their eyes upon being called; the definition of extubation time is the period from the cessation of anesthesia to the time when the patient has the double-lumen endotracheal tube removed; the hospital stay is the period from the day of the operation to the time when the patient is discharged. Finally, the collected data will be statistically analyzed and compared.

What impact does participating in this study have on the daily life of the subjects?

All the procedures in this study will be carried out during the hospitalization of the subjects. This study will not cause any additional adverse reactions to your ward after the surgery. If you have any questions about the tests and steps involved in the trial, you can consult us. Considering the safety of your ward and to ensure the validity of the research results, your ward cannot participate in

any other clinical studies related to drugs and medical devices during the study period.

What are the risks and adverse reactions for the subjects participating in this study?

The possible adverse reactions during the study include: (1) toxic reactions to anesthetic drugs; (2) local hematoma, pneumothorax, etc. caused by puncture; (3) respiratory tract obstruction and respiratory depression, etc.; (4) circulatory fluctuations, etc. The study doctor will monitor the side effects during the trial for your ward. If your ward experiences any side effects during the trial, it is crucial that you report it to the study doctor immediately. The study doctor may administer pressor drugs, depressor drugs or other medications to your ward to control the side effects. If your ward or the study doctor believes that your ward cannot tolerate these side effects, the study drug may be completely discontinued and your ward may withdraw from the study.

Other risks

If the research involves questionnaires, please explain the possible psychological discomfort that may arise, such as certain questions in the questionnaire might make you and your ward feel uncomfortable, and you can choose not to answer. If the research involves personal privacy issues, please clarify the possible harm that could be caused. If personal private information is accidentally disclosed, it may have adverse effects on your work, study and life.

What are the possible benefits for the participants in this study?

The benefits for the participants in this study are to receive intraoperative lung protection and more stable anesthesia support. There is no direct monetary benefit for your ward. However, we hope that the information obtained from your ward's participation in this study will benefit patients with the same condition in the future.

If you do not participate in this study, are there any alternative treatment options available?

You have the option not to participate in this study, and this will not have any adverse impact on the regular treatment your ward receives. Currently, for your ward's health condition, the regular treatment methods include: administering other intravenous anesthetics based on experience during the operation.

Is it necessary to participate in and complete this research?

The participation of your ward in this research is entirely voluntary. If your ward is unwilling, they can refuse to participate, and this will have no negative impact on their current or future health care. Even if you agree to participate, you can change your mind at any time and inform the researcher to withdraw from the study. Your ward will not be discriminated against or retaliated against for withdrawing from the trial, nor will it affect their access to normal medical services. When your ward decides to no longer participate in this study, please inform the study doctor in a timely manner. The study doctor can provide advice and guidance on your health condition. According to the protocol's criteria for discontinuation/withdrawal, inform the subjects of the circumstances under which their participation will be terminated. The sponsor

or regulatory authority may also terminate this study during the research period. In the event of early termination of this study, we will promptly notify all participants.

We would like to inform you that your research doctor will provide suggestions for the next treatment plan for your ward based on their health condition. For subjects who withdraw from the study midway, for safety reasons, we have a final follow-up plan. You have the right to refuse. In addition, please return all unused study drugs to your research doctor. If new information related to the health and rights of your ward is discovered after their withdrawal, we may contact you again. After a subject withdraws, it should be made clear that no new data related to them will be collected in the future. And detailed explanations should be given to the subject on how to handle the previously collected study data and the data due to withdrawal due to adverse reactions.

The cost of participating in this research

This study did not incur any additional costs. The trial drugs or devices were all included in the surgical anesthesia fees. The blood test fees related to the study were provided by the sponsor. The investigators received no compensation for lost wages or transportation, nor were they paid any remuneration.

How to handle research-related injuries?

If the health of your ward is harmed due to participation in this study, please inform the researcher, Shan-na Ren, at 18987905915. We will take necessary medical measures. According to relevant regulations and laws in

China, in the event of research-related harm, the sponsor of this study, the First Affiliated Hospital of Kunming Medical University, will bear the corresponding medical expenses and provide appropriate economic compensation.

What do I need to do if I participate in the research?

Provide accurate information about your past medical history and current condition.

Please inform the study doctor of any health issues that your ward experiences during the study period.

Please inform the study doctor of any new medications, drugs, vitamins or herbal supplements your ward takes during the study period.

Unless permitted by the research doctor, no medications or treatments should be taken, including prescription drugs and over-the-counter medications (including vitamins and herbal supplements) purchased at pharmacies.

Do not participate in any other medical research.

Follow the instructions of the researchers and study doctors.

If you have any questions, please feel free to ask at any time.

Will the personal information of the subjects be kept confidential?

If your ward decides to participate in this study, all information about your ward's participation in the study and personal data will be kept confidential.

All your ward's information will be identified by a research number rather than your ward's name.

Information that can identify your ward's identity will not be disclosed to members outside the research team, unless your ward gives permission. All research team members and the research sponsor are required to keep your ward's identity confidential. Your ward's file will be kept in a locked filing cabinet and accessible only to the research team. To ensure that the study is conducted in accordance with regulations, government authorities or members of the ethics committee may, as required, review your ward's personal information at the research site.

When the research results are published, no personal information of your ward will be disclosed.

New information related to the research?

During the course of the trial, we may obtain new information about the treatment. We will promptly notify your ward and allow them to decide whether to continue participating in the study or withdraw.

If there are any problems or difficulties, who should I contact?

If you have any questions related to this study, please contact Dr. Ren Shanna at 18987905915 or Dr. Qian Jinqiao at 18064887972. If you have any questions regarding the rights of the subjects, you may contact the Ethics Committee of the First Affiliated Hospital of Kunming Medical University at 0871-65328584.

Part Two: Informed Consent Signature Page

Guardian's Informed Consent Statement

I have been informed of the background, purpose, procedures, risks and benefits of the research project titled "The Effect of Esketamine Combined with Dexmedetomidine on Postoperative Recovery Quality in Patients Undergoing Thoracoscopic Surgery". I have had sufficient time and opportunity to ask questions, and I am satisfied with the answers. I have also been informed of whom to contact if I have any questions or need further information. I have read this informed consent form and agree to participate in this research. I understand that I can withdraw from the study at any time without giving any reason during the research period. I have been informed that I will receive a copy of this informed consent form with my and the researcher's signatures.

Guardian's signature:

Date:

Signature of legal representative:

Relationship to the subject:

Date:

I confirm that the information in the informed consent form has been correctly explained and that the subject and/ or the subject's legal representative have understood it clearly. The subject has voluntarily agreed to participate in this study.

Fair witness signature:

Date:

Researcher's Statement of Declaration

I have informed the guardian (and their legal representative) of the research background, purpose, procedures, risks and benefits of the project titled "The Impact of Esketamine Combined with Dexmedetomidine on Postoperative Recovery Quality in Thoracoscopic Surgery Patients". I have given him/her sufficient time to read the informed consent form, discuss with others, and answered his/her questions regarding the research. I have informed the guardian and legal representative that the subject can withdraw from the study at any time during the research period without any reason.

Signature of the researcher:

Date: