Effect of Fosaprepitant on Motor Evoked and Somatosensory Evoked Potentials Under General Anesthesia

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1. PURPOSE OF THE STUDY

a. Brief Summary

The purpose of this study is to determine if intravenous fosaprepitant can interfere with nervous system monitoring signals in patients having surgery under general anesthesia. Fosaprepitant is a drug commonly used to prevent post-operative nausea and vomiting, and works by inhibiting "substance P", which is found in the brain and spinal cord. Theoretically, fosaprepitant could interfere with nervous system recordings because of its effect on substance P, but it is not known if this actually occurs. The drug will be given after the patient has been anesthetized but before surgical incision so that if there are any changes on the intraoperative neuromonitoring signals they can only be attributed to fosaprepitant.

b. Objectives

If fosaprepitant alters intraoperative neuromonitoring signals during surgical procedures under general anesthesia, it would be important because anesthesiologist's who administer this drug would want to give it at the beginning of surgery when changes in intraoperative neuromonitoring signals would be unlikely to mean that these changes were due to surgical damage to the nervous system.

c. Rationale for Research in Humans

We are specifically interested in evaluating if fosaprepitant alters intraoperative neuromonitoring signals in human patients having surgery under general anesthesia.

2. STUDY PROCEDURES

a. Procedures

On the day of surgery the patient will be consented in the preoperative area. We regularly use fosaprepitant in surgical patients undergoing procedures under general anesthesia with intraoperative neuromonitoring.

The patient will receive a single dose of 150 mg intravenous fosaprepitant after general anesthesia has been induced as prepared by pharmacy. Intraoperative neuromonitoring signals will be monitored for any changes during and after the administration of fosaprepitant.

The patient's intraoperative anesthetic management will be that typically utilized for surgical procedures with intraoperative neuromonitoring.

b. Procedure Risks

Using fosaprepitant in the operating room is widely used in the United States and is generally considered safe. This study will no withhold medication used to treat post-operative nausea and vomiting, rather, it seeks to determine if utilizing this very safe and effective medication during surgical procedures under general anesthesia with intraoperative neuromonitoring will alter or change intraoperative neuromonitoring signals due to the mechanism of action of the drug.

c. Use of Deception in the Study

No deception will be used.

d. Use of Audio and Video Recordings

No audio or video will be recorded.

e. Alternative Procedures or Courses of Treatment

At this point the use of fosaprepitant during surgery is at the discretion of the anesthesiologist. The effect of this medication on intraoperative neuromonitoring signals in patients having surgery under general anesthesia is not understood. No standard treatment is being withheld.

f. Will it be possible to continue the more (most) appropriate therapy for the participant(s) after the conclusion of the study?

After surgery the primary surgery team is free to utilize any nausea and vomiting control scheme they would like to use.

g. Study Endpoint(s)

Our study endpoint is whether a single dose of fosaprepitant at the start of surgery in patients having surgery under general anesthesia with intraoperative neuromonitoring causes any change in intraoperative neuromonitoring signals, and to quantify any such changes.

3. BACKGROUND

a. Past Experimental and/or Clinical Findings

Fosaprepitant is a very effective medication used to prevent post- operative nausea and vomiting in patients having surgery under general anesthesia. The mechanism of action

of this medication is through substance P inhibition, which has effects on numerous sensory systems in the brain and spinal column. In patients who have surgery under general anesthesia with intraoperative neuromonitoring, the sensory and motor pathways are monitored throughout the surgical procedure. It is not known if fosaprepitant could interfere with these intraoperative neuromonitoring signals due to its effect on sensory pathways via substance P inhibition.

b. Findings from Past Animal Experiments

No relevant animal literature exists.

4. RADIOISOTOPES OR RADIATION MACHINES

N/A

5. DEVICES USED IN THE STUDY

N/A

6. DRUGS, BIOLOGICS, REAGENTS, OR CHEMICALS USED IN THE STUDY

a. Investigational Drugs, Biologics, Reagents, or Chemicals

N/A

b. Commercial Drugs, Biologics, Reagents, or Chemicals

Commercial Product 1	
Name:	Fosaprepitant
Dosage:	150 mg
Administration Route	Intravenous (i.v.)
New and different use? (Y/N)	No

7. DISINFECTION PROCEDURES FOR MEDICAL EQUIPMENT USED ON BOTH HUMANS AND ANIMALS

N/A

8. PARTICIPANT POPULATION

a. Planned Enrollment

The total number of participants expected to enroll is 50.

Patients presenting for surgery under general anesthesia with intraoperative neuromonitoring will be approached to participant in this study.

All participants will be at Stanford University Medical Center.

We selected this patient population because we are particularly interested in knowing what effects, if any, fosaprepitant has on intraoperative neuromonitoring signals in patients having surgery under general anesthesia.

b. Age, Gender, and Ethnic Background

There are no exclusions or preferences based on age, gender, or ethnic background.

c. Vulnerable Populations

We are not specifically seeking out any potentially vulnerable populations.

d. Rationale for Exclusion of Certain Populations

No children will be enrolled because this study will be carried out at Stanford University Medical Center which only manages adult patients.

e. Stanford Populations

Enrollment of laboratory personnel, employees, and/or students would be purely coincidental. No payment will be provided for participation.

f. Healthy Volunteers

No healthy volunteers will be enrolled in this study. Only patients coming to Stanford University Medical Center for surgery requiring general anesthesia and intraoperative neuromonitoring will be approached to participate.

g. Recruitment Details

Patients coming to Stanford University Medical Center for surgery requiring general anesthesia and intraoperative neuromonitoring will be approached to participate.

h. Eligibility Criteria

i. Inclusion Criteria

Patients presenting to Stanford University Medical Center for surgery requiring general anesthesia with intraoperative neuromonitoring will be approached to participate.

ii. Exclusion Criteria

Exclusion criteria include patient refusal or inability to consent to this study, or a contraindication to receiving fosaprepitant.

i. Screening Procedures

Medical chart reviewed by the anesthesiologists involved in the study.

j. Participation in Multiple Protocols

Patients will be asked about participation in other studies. Enrollment in other studies that don't interfere with this study is acceptable. Surgical patients are frequently asked by the surgeon to allow the collection of tissue samples for research purposes. This is done during surgery and does not in any way interfere with this study.

k. Payments to Participants

Subjects will not receive payment.

l. Costs to Participants

None. This medication available on the Stanford University Medical Center operating rooms formulary. It can be used at the discretion of the anesthesiologist managing the case.

m. Planned Duration of the Study

One year. The total time requirement for each participant is minimal. It includes the time to get informed consent.

9. RISKS

a. Potential Risks

i. Investigational devices

N/A

ii. Investigational drugs

N/A

iii. Commercially available drugs, biologics, reagents or chemicals

Most common adverse reactions (≥2%) are: fatigue, diarrhea, neutropenia, asthenia, anemia, peripheral neuropathy, leukopenia, dyspepsia, urinary tract infection, pain in extremity.

iv. Procedures

No procedures will be performed.

v. Radioisotopes/radiation-producing machines

N/A

vi. Physical well-being

No impact.

vii. Psychological well-being

No impact.

viii. Economic well-being

No impact.

ix. Social well-being

<Enter text or No impact. "NA">

x. Overall evaluation of risk

Low risk.

b. International Research Risk Procedures

N/A

c. Procedures to Minimize Risk

Patients will be screened for history of allergy or hypersensitivity to fosaprepitant.

d. Study Conclusion

Study will terminate when either 50 participants have been enrolled, or when results are deemed significant enough by principle investigator.

e. Data Safety Monitoring Plan (DSMC)

i. Data and/or events subject to review

According to section B1 of the data and safety monitoring form, we don't believe a DSMP is required for this study since it carries minimal risk.

ii. Person(s) responsible for Data and Safety Monitoring

Protocol Director

iii. Frequency of DSMB meetings

N/A

iv. Specific triggers or stopping rules

N/A

v. DSMB Reporting

N/A

vi. Will the Protocol Director be the only monitoring entity? (Y/N)

Yes

vii. Will a board, committee, or safety monitor be responsible for study monitoring? (Y/N)

No

f. Risks to Special Populations

N/A

10. BENEFITS

This study seeks to determine if fosaprepitant alters intraoperative neuromonitoring signals during general anesthesia. If it is found that this medication does alter intraoperative

neuromonitoring signals, it would be helpful to avoid administration of this medication during parts of the surgical procedure where changes in the intraoperative neuromonitoring signals could be mistakenly attributed to the surgical procedure causing neurological damage.

11. PRIVACY AND CONFIDENTIALITY

All participant information and specimens are handled in compliance with the Health Insurance Portability and Accountability Act (HIPAA) and privacy policies of Stanford University, Stanford Health Care, and Stanford Children's Health.