

# Does early removal of breathing support reduce complications in patients who have had surgery for bleeding on the brain?

<b>Submission date</b> 12/07/2019	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 28/10/2019	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 08/04/2020	<b>Condition category</b> Respiratory	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

Patients who are having intracranial surgery (opening the skull) to treat a haematoma (bleeding on the brain) need to have a tube inserted into their airway to enable mechanical ventilation (a breathing machine) to ensure they get enough air during the operation. The patient must be sedated to some extent because the tube and mechanical ventilation is uncomfortable and potentially distressing. After surgery, patients who are still being mechanically ventilated must be cared for in the intensive care unit (ICU), where they are at higher risk of picking up an infection or suffering damage to the lungs from the mechanical ventilation. In addition, it is difficult to assess the patient's brain function when they are sedated. This trial aims to compare whether it is better to extubate (remove the breathing tube) in the operating theatre after the operation or to extubate in the ICU 8 hours after the operation and care for the patient in a post-surgical ward.

### Who can participate?

Adults who need to have surgery to open their skull to remove blood that is pressing on their brain and who have not had a breathing tube inserted before the operation.

### What does the study involve?

Participants were randomly allocated to one of two groups. Both groups had surgery to treat their haematoma as usual. One group were woken from anaesthesia and had the breathing tube removed in the operating theatre. Participants in the other group were taken to the ICU while still anaesthetised and had the breathing tube removed 8 hours after the end of the surgery.

### What are the possible benefits and risks of participating?

Participants who were in the early extubation group might experience fewer complications of mechanical ventilation and not need to be admitted to the ICU.

### Where is the study run from?

The Autonomous Univeristy of Nueva Leon (Mexico)

When is the study starting and how long is it expected to run for?  
January 2014 to August 2015

Who is funding the study?  
The Autonomous Univeristy of Nueva Leon (Mexico)

Who is the main contact?  
Dr Gustavo González Cordero  
ggcordero@yahoo.com

## Contact information

**Type(s)**  
Scientific

**Contact name**  
Dr Gustavo González Cordero

**Contact details**  
Francisco I. Madero Ave/Gonzalitos Ave  
Monterrey  
Mexico  
64460  
01811569400  
ggcordero@yahoo.com

## Additional identifiers

**Clinical Trials Information System (CTIS)**  
Nil known

**Protocol serial number**  
AN14-003

## Study information

**Scientific Title**  
Fast-track extubation in patients after intracranial hematoma surgery

**Acronym**  
FTEIHS

**Study objectives**  
Fast track should be regarded as a routine technique in patients who meet the required criteria, so that they may be discharged faster and with fewer complications that may potentially endanger their lives or prolong their hospital stay. Deliberate delay or failed extubation increases the incidence of post-operative pneumonia, mortality and longer stays in the ICU and hospital. Another important issue, after considering the patient's life and safety first, is the economic factor. If the patient is discharged without admission to the ICU, the economic burden for the patient, the hospital or the medical insurance company is significantly reduced. This

study aims to determine whether Intensive Care Unit stay and ventilator-associated complications are reduced in patients who received surgery for intracranial hematoma if they are extubated early.

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

Approved 04/07/2014, Comité de Ética en Investigación de la Facultad de Medicina y Hospital Universitario de la Universidad Autónoma de Nuevo León [Research Ethics Committee of the Faculty of Medicine and University Hospital of the Autonomous University of Nuevo León] (Avenida Francisco I Madero OPte s/n y Avenida Gonzalitos, Col. Mitras Centro, 64460 Monterrey, Nuevo Leon, Mexico; +52 8329 4050 ext 2870; investigacionclinica@mecuanl.com), ref: AN14-003.

### **Study design**

Randomised controlled trial

### **Primary study design**

Interventional

### **Study type(s)**

Treatment

### **Health condition(s) or problem(s) studied**

Early extubation to prevent ventilator-associated complications following intracranial hematoma surgery

### **Interventions**

Early extubation, also known as fast track, is desirable after intracranial hematoma surgery to avoid ventilator-associated complications associated with admission to an intensive care unit (ICU). The objective of the present study was to determine whether ICU stay and ventilator-associated complications are reduced in patients who received surgery for intracranial hematoma if they are extubated early. A total of 17 patients were randomly assigned to two groups:

In Group 1, patients were extubated early or using the fast-track method

Those in Group 2 were transferred to the ICU and extubated at 8 h post-operatively. Patients programmed to receive a cranial surgery were invited to participate into this trial. Patients from the two groups were assessed on admission to the operating room according to established standards and general anesthesia was induced with propofol (2 mg/kg) and fentanyl (2 µg/kg). Extubation time and hemodynamic stability (number of anesthetic adjustments required to maintain hemodynamic parameters within 20% of the predicted values) were assessed post-operatively.

Patients were extubated when the following criteria were fulfilled: Regular breathing, without intercostal retraction and with a respiratory rate of >8 BPM, a telespirometry CO<sub>2</sub> pressure of 95% with an inspired oxygen fraction of 100%, presence of a swallowing reflex, hemodynamic stability (a change in baseline blood pressure of ≤15 mm Hg), and a cooperative and oriented patient able to respond to verbal instructions. Attempted fast-track extubation was performed

after post-operative neurological assessment by the same responsible surgeon. The difference between the two groups was in extubation time criteria; extubation was 8 h after surgery in the conventional group, but extubation was immediately post-surgical in the fast-track group.

### **Intervention Type**

Procedure/Surgery

### **Primary outcome(s)**

Extubation procedure time

### **Key secondary outcome(s)**

1. Blood pressure, heart rate, respiratory rate and oxygen saturation measured with an S / 5 anesthesia monitor (GE, Datex / Ohmeda) during the entire surgical procedure and the subsequent 24 h
2. Arterial pH measured every 8 h for 24 h using the Cobas B 221 blood gas analyzer (Roche)

### **Completion date**

31/08/2015

## **Eligibility**

### **Key inclusion criteria**

1. Patients about to receive open cranial surgery due to an intracranial hematoma
2. Anesthesia risk of I-III according to the American Society of Anesthesiologists (ASA)
3. Aged 18 years or over
4. No intubation prior to entering the operating room
5. Glasgow coma score of  $\geq 8$

### **Participant type(s)**

Patient

### **Healthy volunteers allowed**

No

### **Age group**

Adult

### **Lower age limit**

18 years

### **Sex**

All

### **Total final enrolment**

17

### **Key exclusion criteria**

1. Patients with catecholamine-secreting tumors, coagulation disorders, or decompensated heart or lung disease
2. Patients with a scheduled surgery in another area of the body

3. Patients with hypovolemic shock
4. Patients whose surgeries lasted for >480 min or were accompanied by massive or uncontrollable bleeding (loss of 50% of blood volume for 3 h (~1 l/h) or >150 ml/kg of body weight or >1.5 ml/kg/min for >20 min)

**Date of first enrolment**

31/01/2014

**Date of final enrolment**

30/08/2015

## Locations

**Countries of recruitment**

Mexico

**Study participating centre**

**Hospital Universitario "Dr Jose Eleuterio Gonzalez"**

Madero Ave/Gonzalitos Ave

Monterrey, Nuevo Leon

Mexico

64460

## Sponsor information

**Organisation**

Hospital Universitario "José Eleuterio González"

**ROR**

<https://ror.org/030ms0x66>

## Funder(s)

**Funder type**

University/education

**Funder Name**

Universidad Autónoma de Nuevo León

**Alternative Name(s)**

Autonomous University of Nuevo León, UANL

**Funding Body Type**

Government organisation

**Funding Body Subtype**

Local government

**Location**

Mexico

## Results and Publications

**Individual participant data (IPD) sharing plan**

The datasets generated during and/or analysed during the current study are available upon request.

**IPD sharing plan summary**

Available on request

**Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>	results	01/04/2020	08/04/2020	Yes	No