

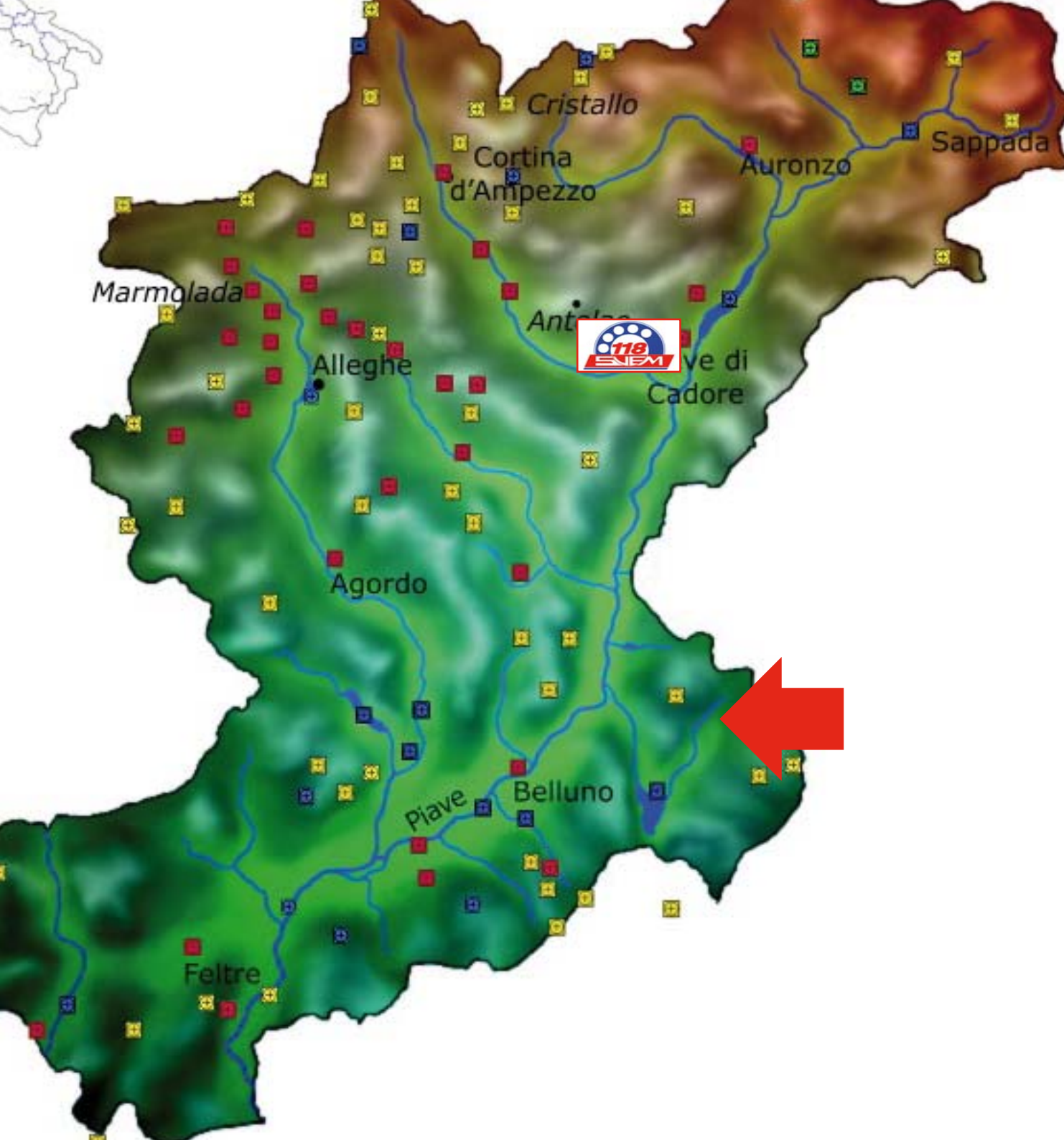


SUEM 118 della provincia di Belluno



Survival after 2 and a half hours under avalanche

G. Cipolotti*, L. De Lazzer*, P. Zanatta°



230.000 inhabitants

**3600 square kilometers
area**

**About 70% of
mountains are
Veneto region**

or an avalanche that has buried two skiers in Alpage zone.

genze
menti ?
ocedure

Località - Comune	Indirizzo	Evento	Mezzo	Fase
UNA D'AMPEZZO	IL CODIVILLA	01000515	FALCO	D1 09:31
ARONE	CASA DI RIPOSO	01000516		
BELLUNO		01000518	BRAVO6	CA 10:19

0:00

Variazioni turni Messaggi

Data e ora Chiamata da

Rif Telefonico

Comune Prov. Nr. Piano

Abilita incrocio

Enti proposti

Giudizio di sintesi

Luogo Patologia Criticità

Base Traumatico Non traumatico G.Medica Sintesi

Pazienti

Età ANNI Sesso M F

Circolo

☐ Pallore e/o sudorazione algida ☐ Cianosi

☐ Emorragia ☐ Ritmo alterato

Vede paziente

☐ SI ☐ NO

Vede accaduto

☐ SI ☐ NO

Respira

☐ SI ☐ NO ☐ NON SO ☐ MALE

Cosciente

☐ SI ☐ NO ☐ NON SO ☐ CONFUSO

BELLUNO CAMAROTTO 04/12/2001 10:39



High avalanche zone



helicopter takes-off
from HEMS base
min.: helicopter
arrival in operative area



anician and rescue dog get off



Thematic Injuries



transport of others rescue alpine teams with helicopters



work of rescue teams continues using different techniques (ARVA, RECCO, drilling)



CPR

presence of air pocket, gasping, bradycardia, T° 21 C°)



Plastic Surgery Dpt. of Treviso Hospital.



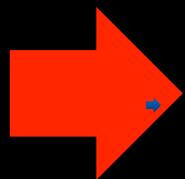
5 helicopters of different Agencies
50 volunteers of Alpine rescue
3 emergency physicians
3 rescue dogs



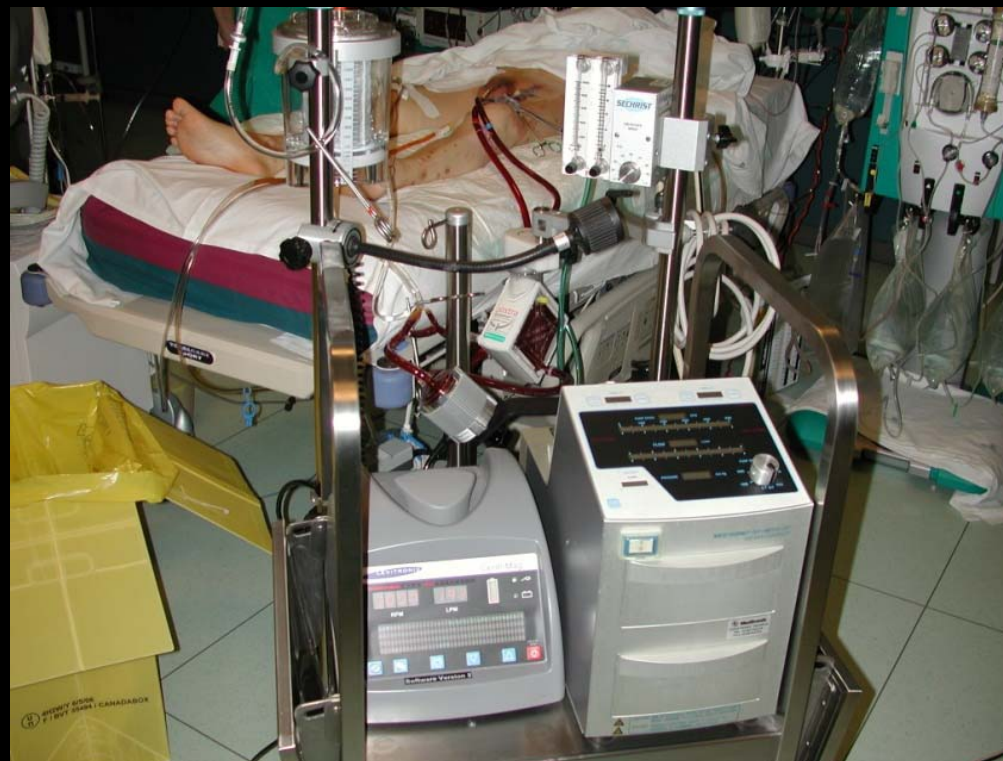
7-2-2010

Asystole - CPR on going

h 15.40



Ph: 6.85, PaCO₂ 61, PaO₂ 61, HCO₃ 7,7 BE – 24,7 Latt 13
K⁺ 5,0 meq/l Hb 13, Glic 508



h 16.00

Femoral arterious venous ECMO (extracorporeal membrane oxygenation). Rewarming rate of 1 degree for hour

At 32 celsious degree, after 10 hour from starting ecmo

DAY 1

After performing a TEE the ECMO was successfully weaning with moderate dose of dopamine.

h 11.30

GCS: E1VtM1

The EEG showed a non convulsive status epilepticus

An intravenous sedation with midazolam and propofol was started
The patient was also subjected to an anti edema treatment with mannitol.

The patient was submitted to:

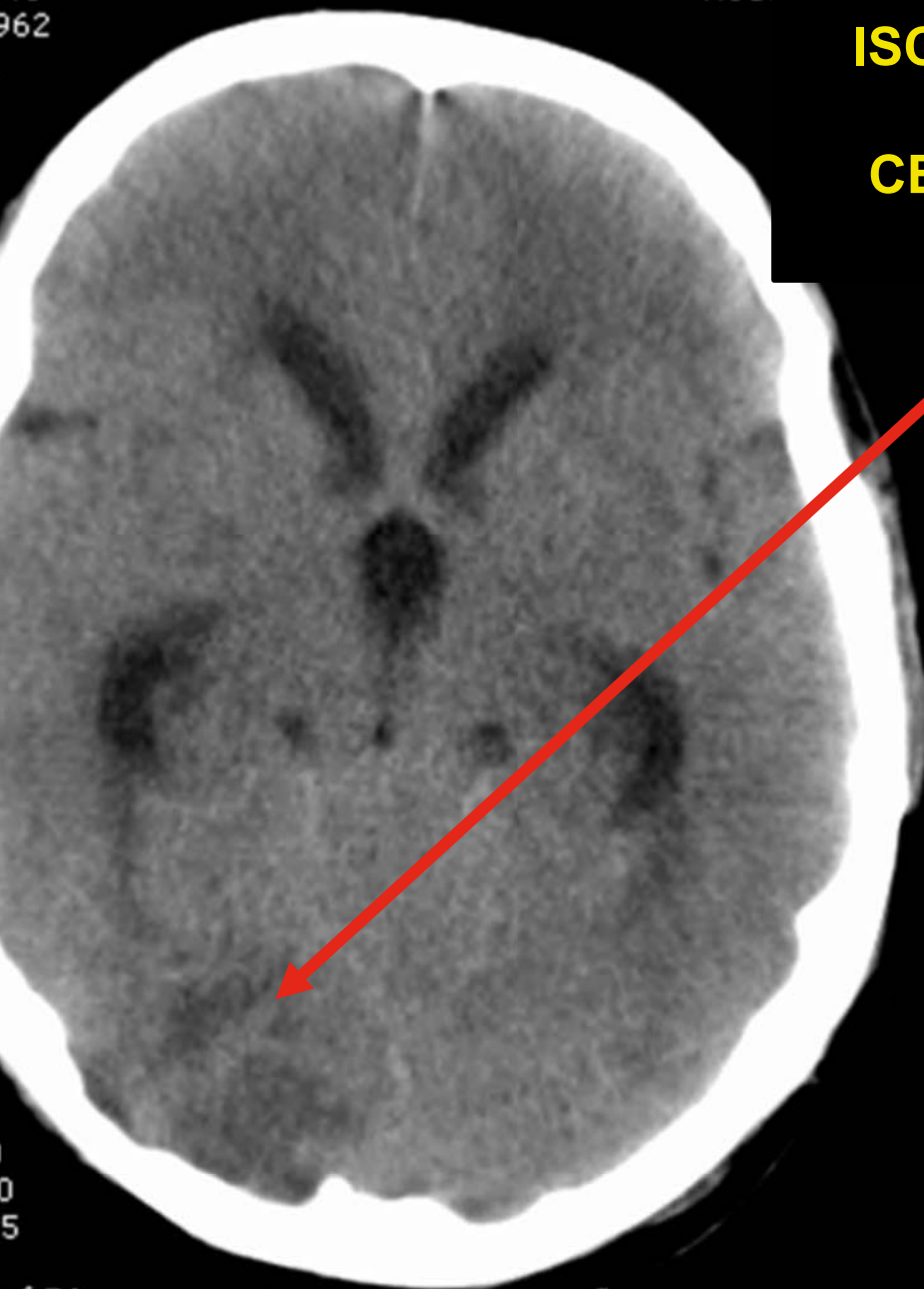
Total CT scan

Brain: posterior cerebral fossa ischemia + brain edema

Thorax: sternum fracture

Abdominal: minimal liver and kidney shedding.

**ISCHEMIA IN
POST.
CEREBRAL
FOSSA**



RD: 213
Tilt: -20
mA: 330
KVp: 120
Acq no: 4

2 EVD was performed also to
have a ICP monitoring
00

Decompressive craniotomy w
h 22.00 left hemispheric cerebellum
removal because of necrosis.



Pasut, Roberto
981031045
29/11/1962
47 YEAR
M



Day 8
h 10.00

Good vital signs - GCS: E1VtM1
Neurophysiological evaluation to explore the Central Nervous System Function

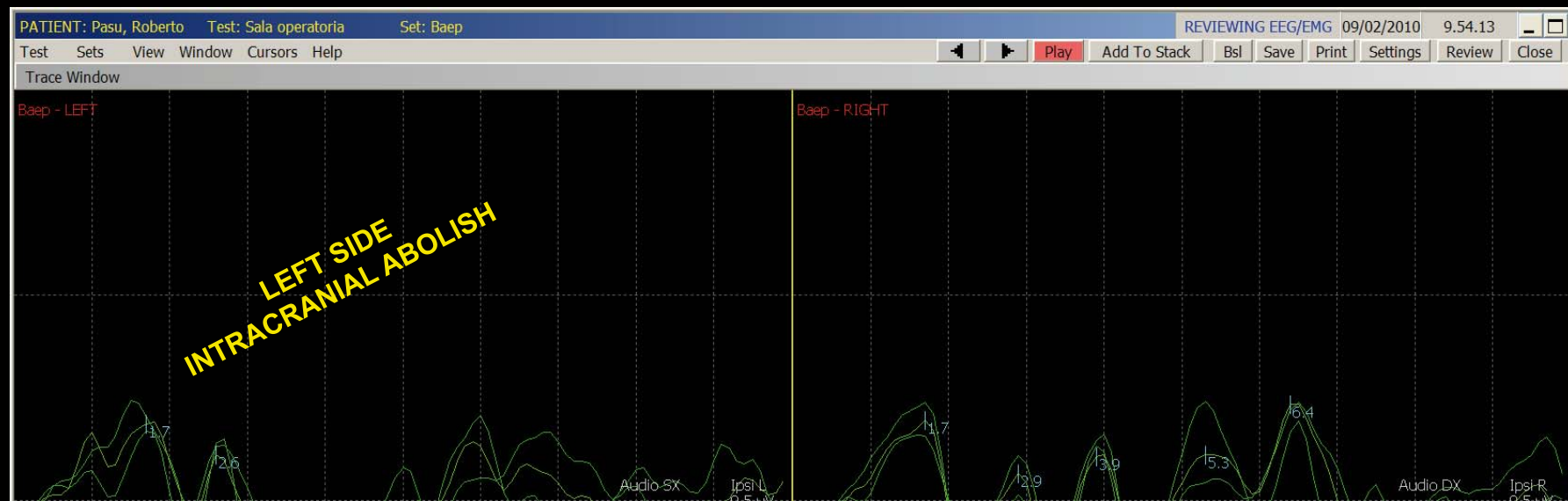
EEG

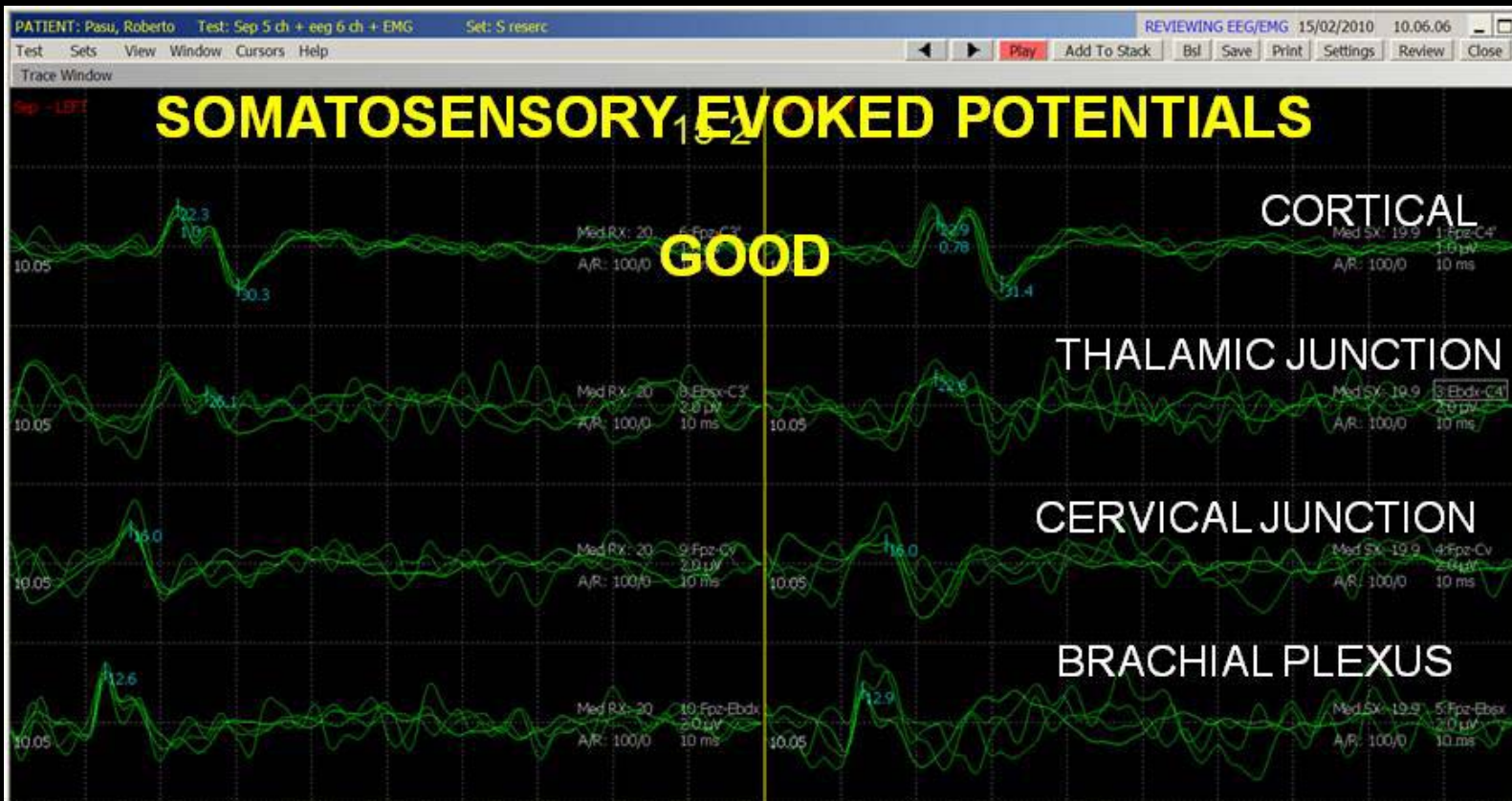


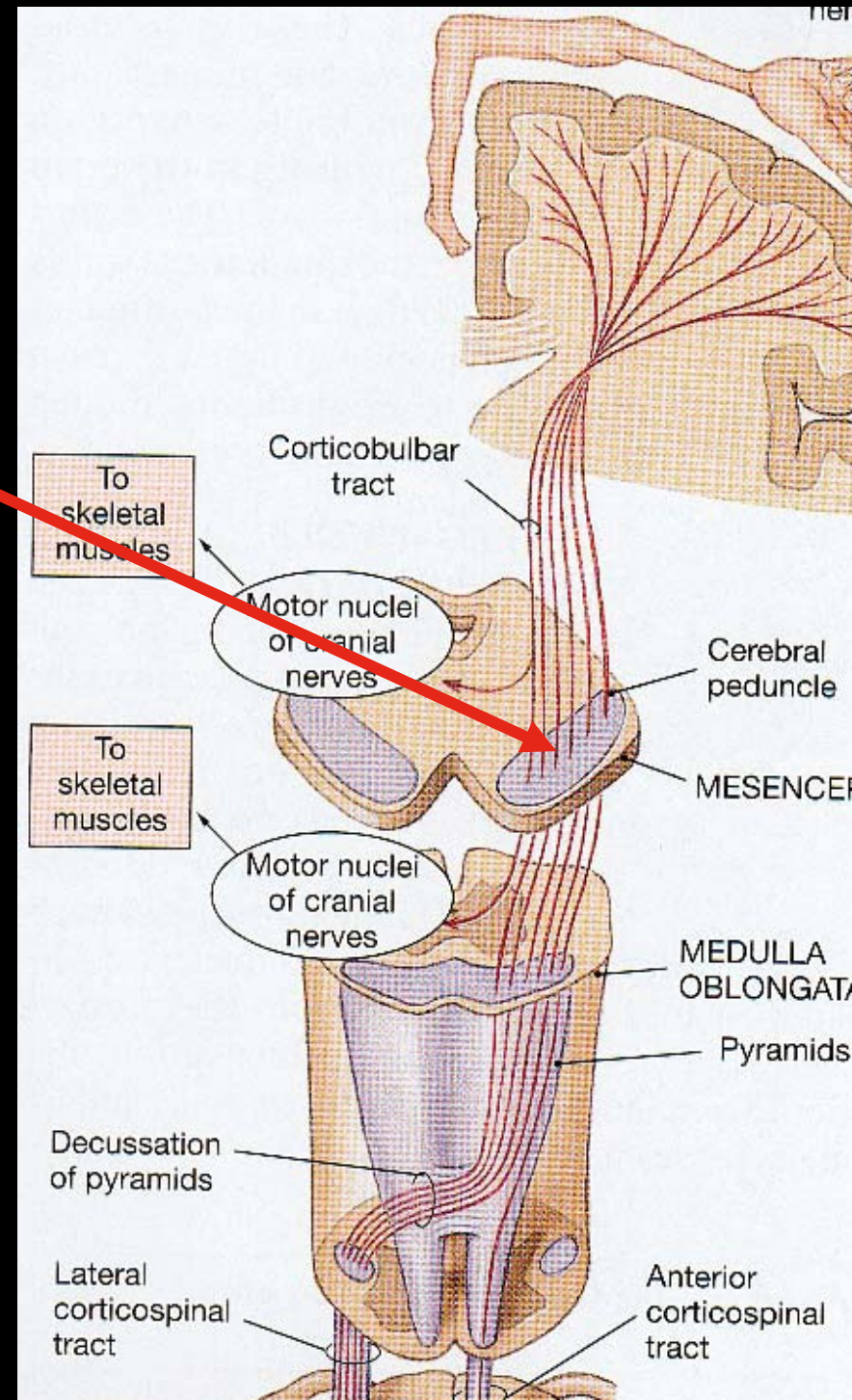
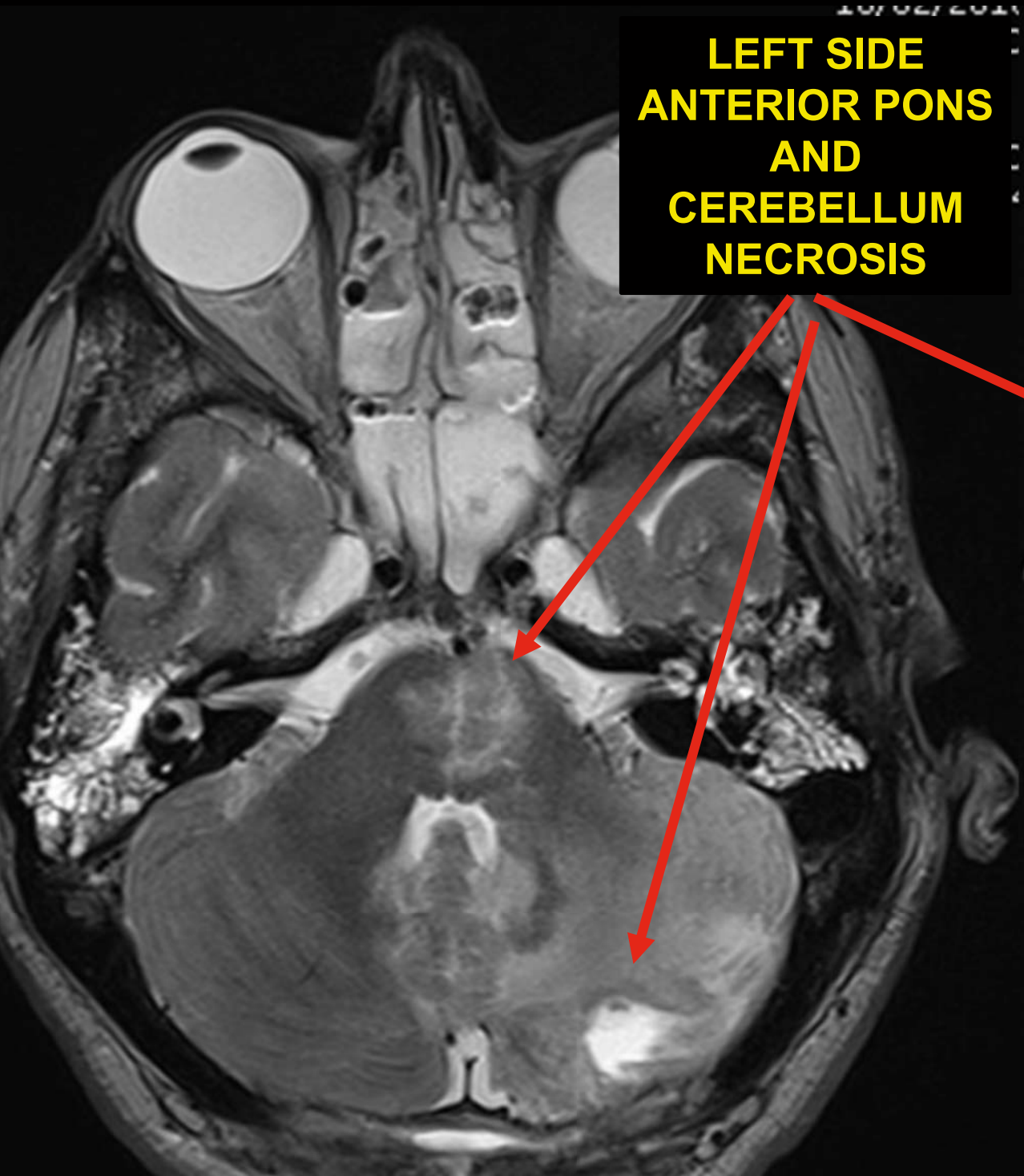
MOTOR EVOKE POTENTIALS



BRAIN ACOUSTIC EVOKED POTENTIALS







DAY 31 Surgical closure of a dural fistula

DAY 40 Hospital discharge to a Physical Rehabilitation
Hospital

GCS: E4 Vt M3,

Pupils light reactivity.

At painfull stimulation upper arm flexion

EEG: NCSE, trated increasing the dosage of depakin.

MONTH 4

Patient regains consciousness, moves the left arm and
leg, with paraparesis of the right side. He also has a
deficit of short term memory.

MAY, 2011

Now he is conscious, he breaths normally with
tracheotomy, he has good motor function on the left side
while an hemiparesis on the right side. He speaks
fluently, He has an excellent long term memory and
good capacity of controlling the sphincters. He is not

Lower Temperature reached: 19.5°C

Survival Time: 2.5 h

pH = 7.35
pCO₂ = 5 mEq/l

Long rewarming ECMO (17 hours)

Posterior brain ischemia agrees with the body position in the avalanche with head lower than the body and the neck flexed on the left side (increase of ischemic perfusion injury during rewarming)

Neuro intensive care treatment with external ventricular derivation and intracranial pressure monitoring.

Early Neurophysiological data agrees with the neurological recovery of consciousness and left side motor function.

Difficulty to treat NCSE due to brain stem reticular formation ischemia who is responsible of the late recovery of consciousness.

*saw the avalanche coming, I run off, the avalanche reached
me and run me over, I was immobilized, I was'nt able to
move my hands. I thought: my life is gone, ...*

*With my tongue I opened an air pocked in front on my mouth;
I thought to my self ..., “you must remain awake”.*

*I heard the sound of the helicopter, I felled the rescue drill on
my chest, I heard the dog barking and the shouts of the
rescuers saying ...” we have found him !!” ...*

*than someone has open my mouth I sow the helicopter
..... and I didn't remember nothing else.*