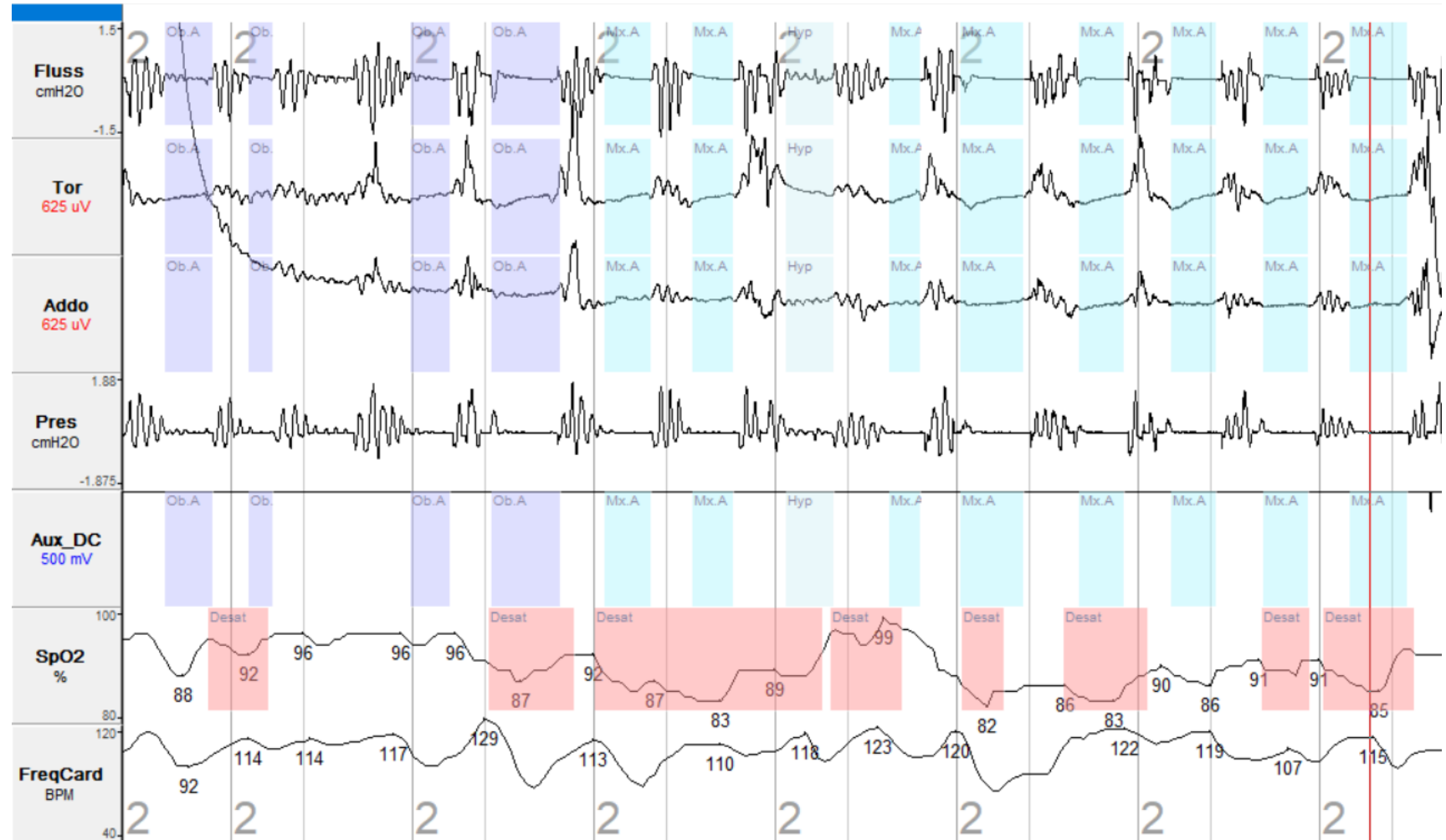# Patient 1

Clinical records

- Obese patient, male
- 11 years old
- Weight: 108 Kg
- Height: 157 cm
- BMI: 43 Kg/m^2
- Hepatic steatosis
- Hyperinsulinemia
- MOAHI: 107.9
- SpO$_2$ < 90%: 21.6 (time %)
- Mean EtCO$_2$: 39.8 mmHg
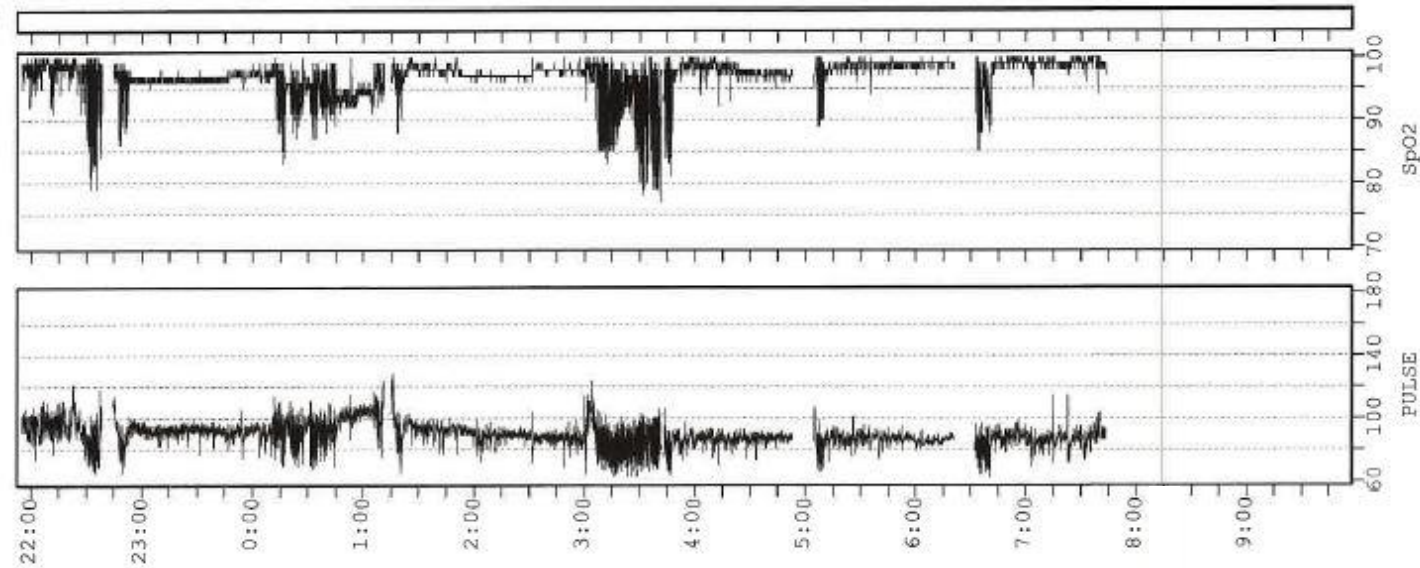- Highest EtCO$_2$: 47.0 mmHg
- etCO2 > 50 mmHg (% sleep time): 0.0

What to do:

- Start CPAP?
- Start Bi-level?
- Repeat sleep study?
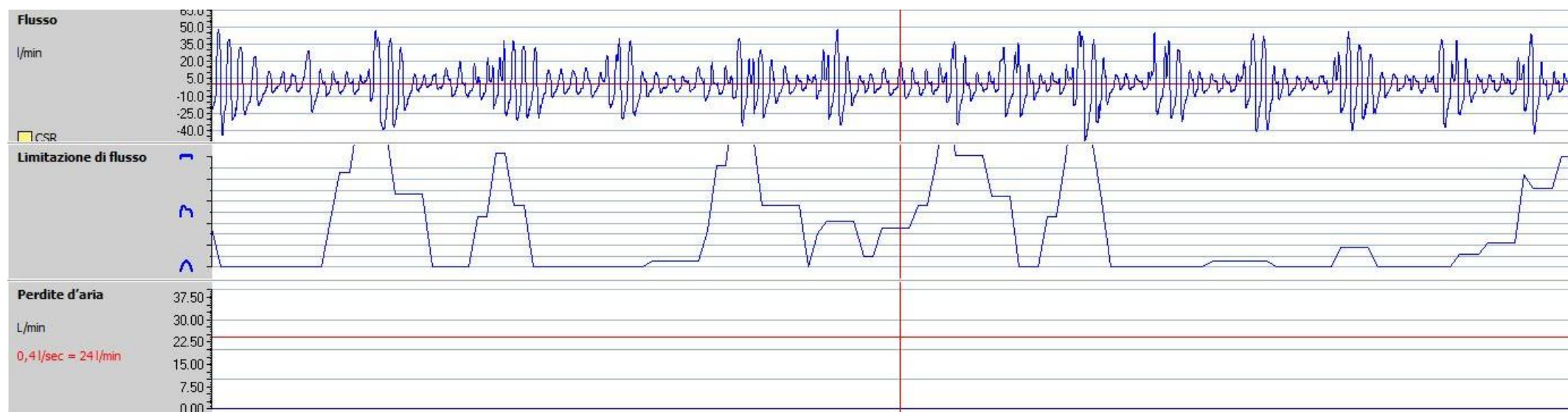- Revaluate after weight loss?
- Other…?

What to do:

- Start CPAP? $\longrightarrow$ 6 cmH$_2$O level CPAP was started.

- Start Bi-level?

- Repeat sleep study?

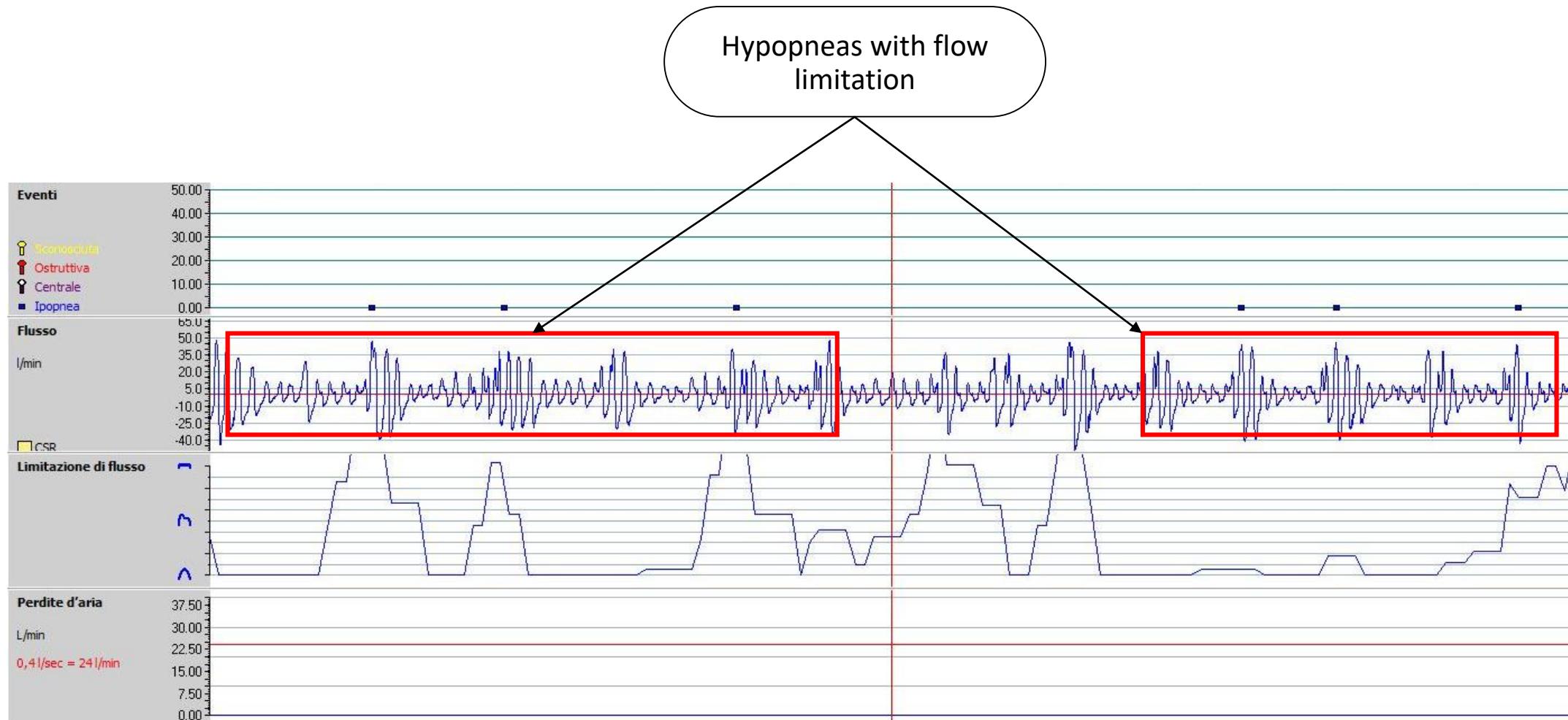- Revaluate after weight loss?

- Other…?

Pulse oximetry (CPAP 6 cmH$_2$O)

- Mean SpO$_2$: 96.9%
- Min SpO$_2$: 77%
- SpO$_2$ < 90% : 3.5 (time %)
- ODI$_0$: 32.6

Built-In Software analysis (CPAP 6 cmH$_2$O)

Built-In Software analysis (CPAP 6 cmH$_2$O)


Hypopneas with flow limitation

What to do:

- Increase CPAP level?

- Decrease CPAP level?

- Repeat sleep study?

- Switch to Bi-level setting?

- Other…?

What to do:

- Increase CPAP level?

- Decrease CPAP level?

- Repeat sleep study?

- Switch to Bi-level setting?

- Other…?

Pressure provided was not sufficient for overcoming the upper airway obstruction. CPAP was increased to 8 cmH_2O.

Pulse oximetry (CPAP 8 cmH$_2$O)
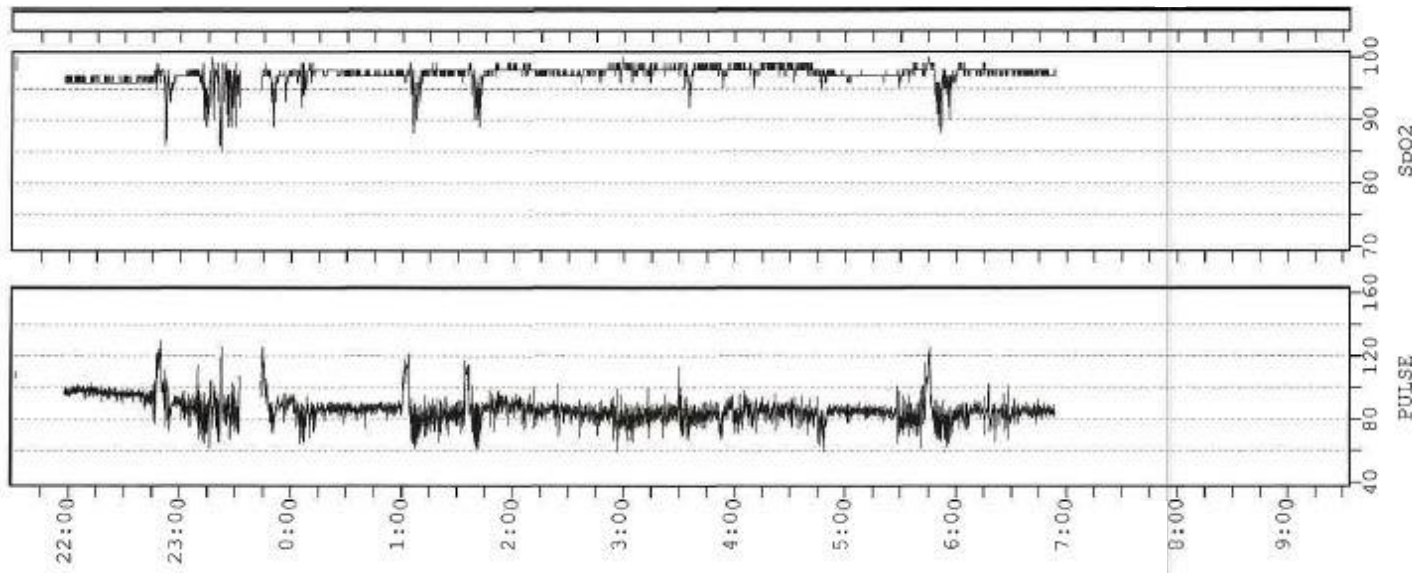
- Mean SpO$_2$: 97.3%
- Min SpO$_2$: 85%
- SpO$_2$ < 90%: 0.5 (time %)
- ODI$_0$: 5.6

What to do:

- Increase CPAP?

- Decrease CPAP?

- Switch to Bi-level?

- Revaluate after weight loss?

- Other…?

What to do:

- Increase CPAP?

- Decrease CPAP?

- Switch to Bi-level?

- Revaluate after weight loss? → Patient was discharged with a scheduled short-term follow-up. Patient was also monitored remotely via telemedicine web platform.

- Other…?

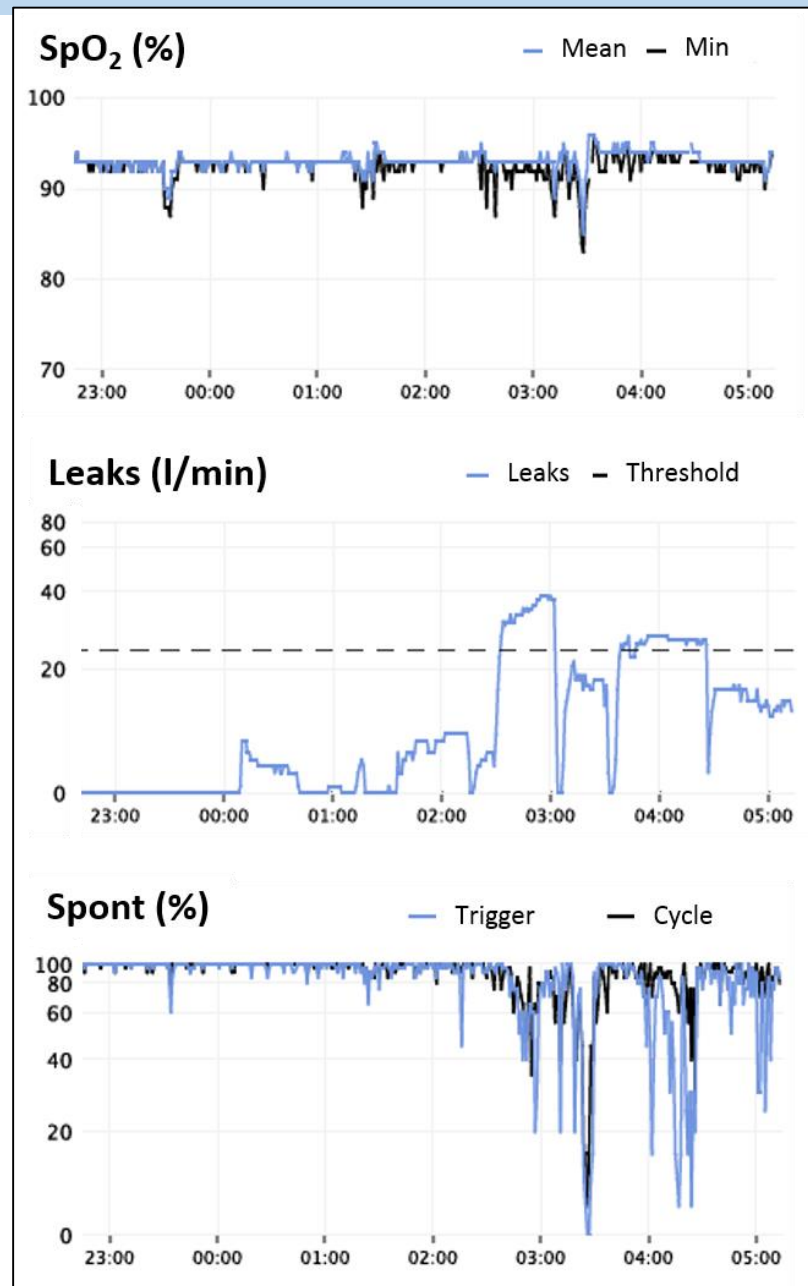Built-In Software analysis (remotely, 1 month follow- up)
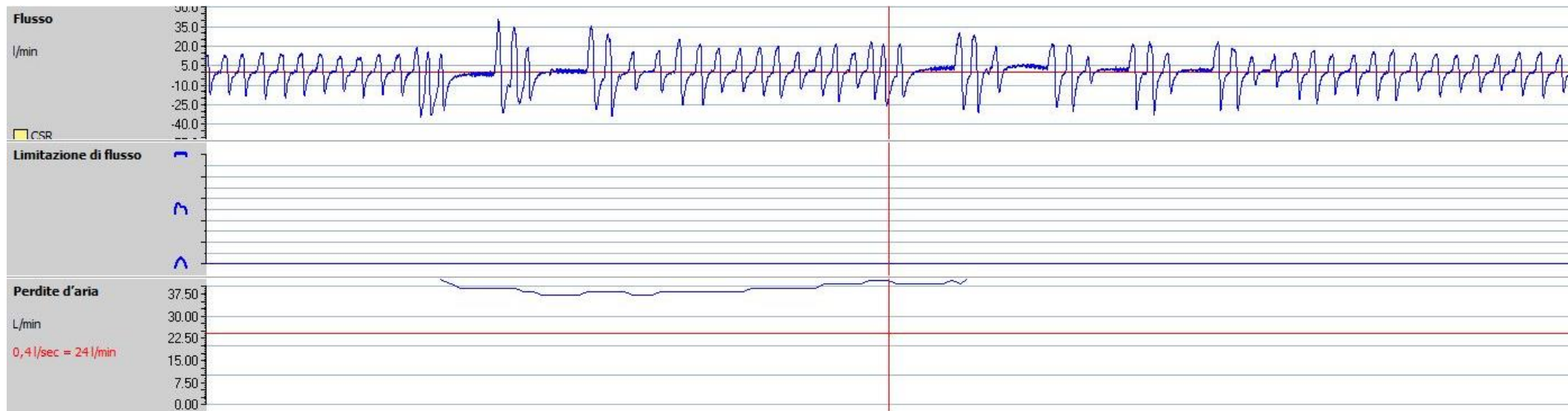
SpO$_2$ mean: 97%
SpO$_2$ min: 85%
ODI: 11.9
AHI: 0.4

BIS analysis showed desaturations accompanied by strong air leaks

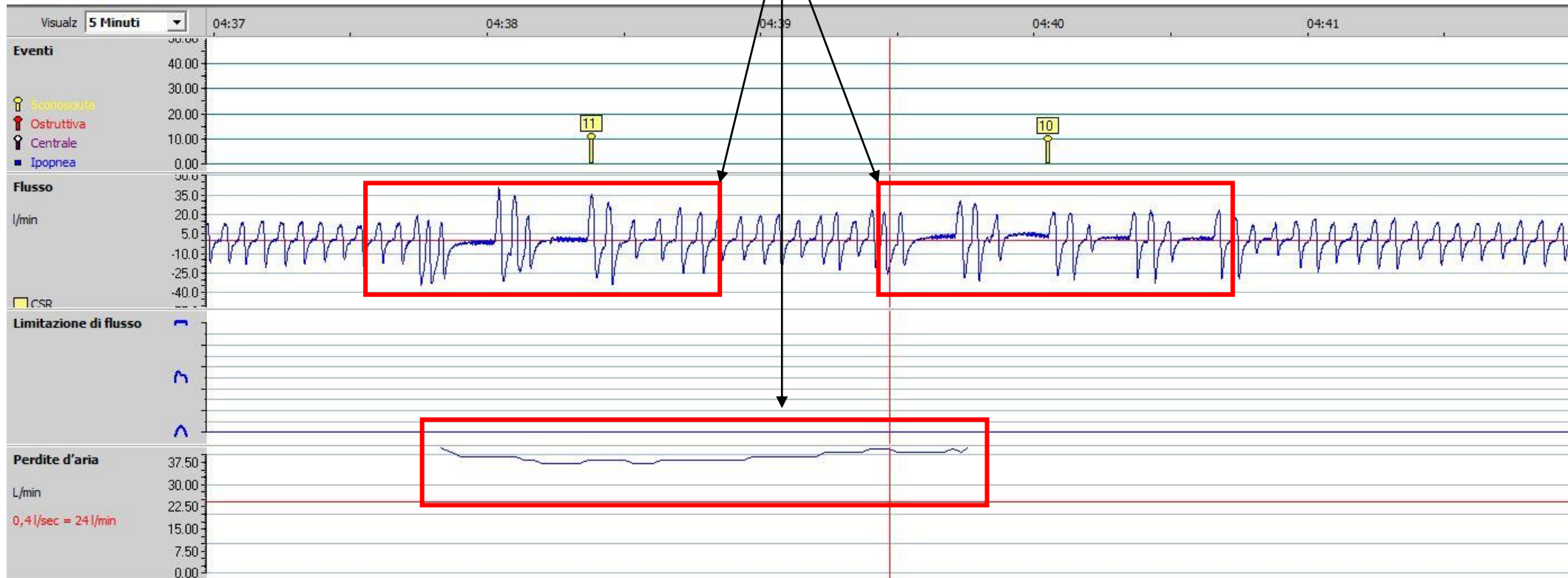Patient's hospitalization was scheduled for the following month

Built-In Software: CPAP case

Built-In Software analysis (2 months follow-up)

- ## **Weight: 98.7 Kg (-10 Kg)**
- Height: 157 cm
- BMI: 40 Kg/m^2
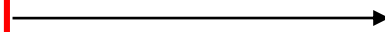
Built-In Software analysis (2 month follow-up)

A conversation with the family revealed that the patient felt uncomfortable with the high pressure, and often moved and adjusted the nasal mask.

What to do:

- Increase CPAP?

- Decrease CPAP?

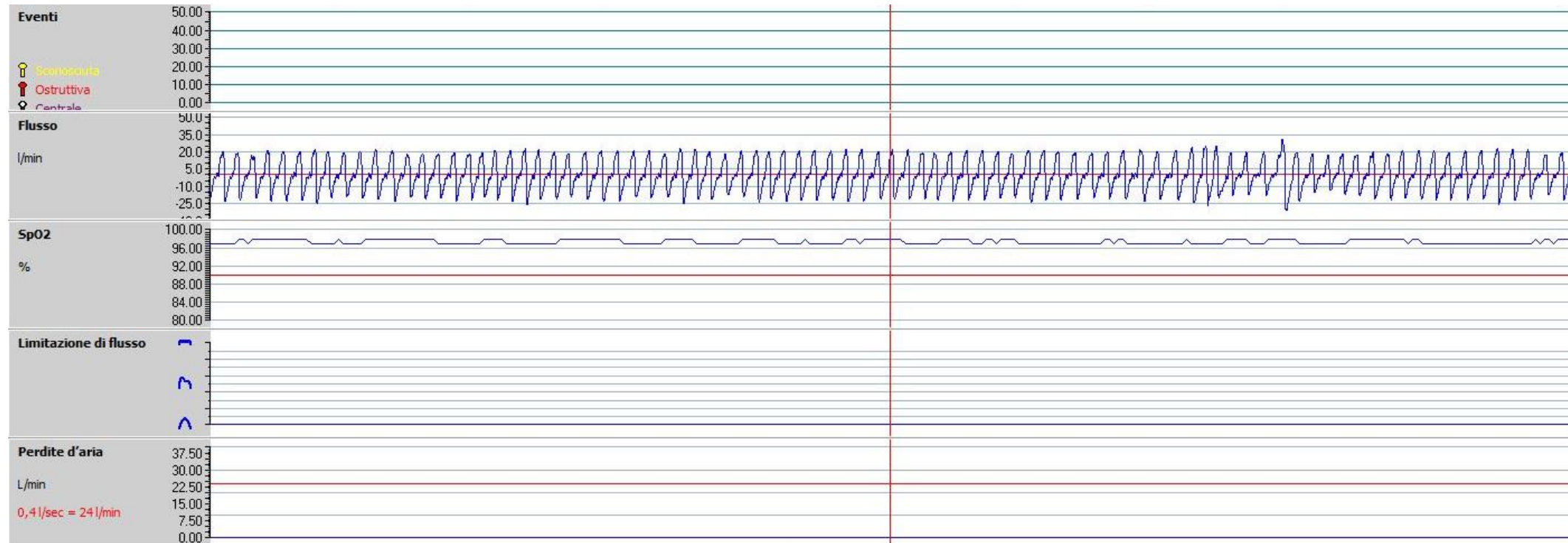- Switch to Bi-level?

- Other…?

What to do:

- Increase CPAP?
- Decrease CPAP? → CPAP was decreased to 7 cmH$_2$O.
- Switch to Bi-level?
- Other…?
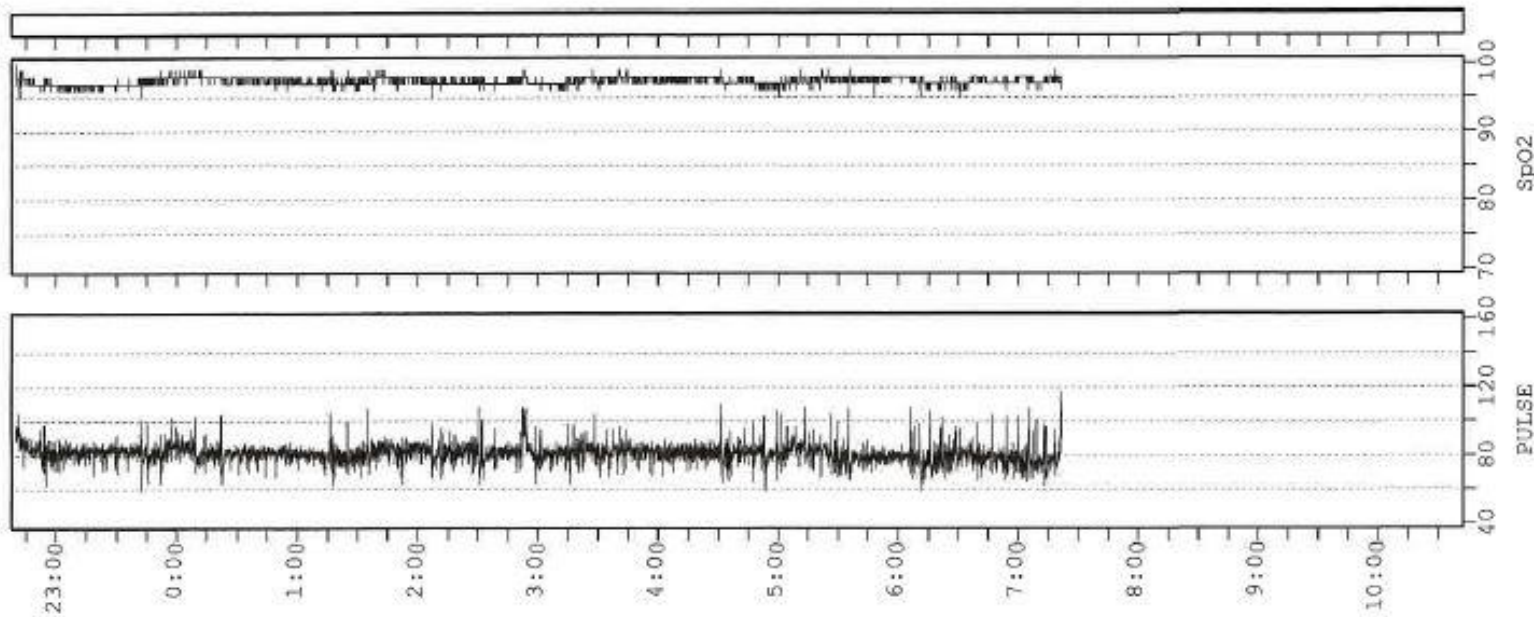
Built-In Software analysis: CPAP 7 cmH$_2$O

New data analysis showed no apneas, good saturation, no flow limitation and no unintentional leaks

Pulse oximetry (CPAP 7 cmH$_2$O)

- Mean SpO$_2$: 97.4%
- Min SpO$_2$: 91%
- SpO$_2$ < 90% : 0.0 (time %)
- ODI$_0$: 3.1

PSG study (CPAP 7 cmH$_2$O)

PSG study showed no residual events