

## PHC721 - CLINICAL PROBLEM SET # 4

Patient
Male, 62 years old
Chief Complaint
<p>"My son is your patient, Doctor. I am from Libya and came to visit him and his family. Just before I left for this trip, my family dentist told me he could not save this tooth (<i>the patient is pointing to the right side of the mandible</i>). My son really trusts you and wanted me to wait with the extraction until you see the tooth. But now the tooth started hurting really badly..."</p>
Background and/or Patient History
<p>Truck driver; Smoker, 40-pack-years; A head trauma 20 years ago with one episode of generalized seizures.</p> <p>Medications: Valproic Acid (1000 mg daily)</p>
Current Findings
<p>Non-restorable tooth #29; Caries of tooth #30.</p> <p>Temp: 98.4 F BP: 125/85 mmHg HR: 85 bpm Height: 5'4", Weight: 125 lb</p> <p>The extraction of tooth #29 under local anesthesia was unremarkable. The dentist prescribed Tylenol with Codeine #3 tablets (300 mg Tylenol with 30 mg Codeine; three times a day) to relieve the post-surgical pain.</p>

### Four Days Later:

The patient's consciousness rapidly deteriorated and he became unresponsive. His son called 911. The patient was taken to the hospital, where they measured arterial blood gases.  $P_{O_2}$  was 56 mmHg (a fraction of inspired oxygen 0.5) and  $P_{CO_2}$  80 mmHg. The patient was treated with noninvasive ventilation and transferred to the ICU. The neurological exam revealed a score of 6 on the Glasgow Coma Scale (the patient did not open eyes, and responded neither verbally nor by limb withdrawal to pain stimulation). The pupils were miotic.

After 2 hours of assisted ventilation,  $P_{O_2}$  and  $P_{CO_2}$  were 72 mmHg and 54 mmHg, respectively, but no improvement of the neurological status. The serum urea nitrogen and creatinine levels were elevated, but subsequently normalized with hydration. The blood level of ammonia was normal. The serum level of Valproic Acid was within the therapeutic range.

1. What is a likely mechanism of the patient's current condition? How could it be related to the dental treatment he received four days earlier?
2. How should the patient be treated in the ICU besides the assisted ventilation? Please justify your answer.
3. If his son needed a similar dental treatment, what approach would you take? Would there be a need for a modification to your standard protocol?
4. Why did the dentist prescribe the combination medication for pain control in this patient?