Dexmedetomidine in the management of severe tetanus

Sir,

Although tetanus is a rare disease in the developed countries now, it remains a significant cause of death world-wide and is associated with a high rate of mortality. Components of severe tetanus management are supportive care with sedation, airway protection and controlled ventilation.[1] Dexmedetomidine is a high selective α-2-receptor agonist. It has combined analgesic and anti-sympathetic effect without respiratory system depression. There have been several studies describing its successful use in mechanically ventilated patients for short- (24 h) and long-term (up to 7 days) use in the intensive care unit (ICU).[2] Dexmedetomidine has been also used in the treatment of tetanus in six patients for 7 days.[3] We present a case of generalised tetanus complicated by uncontrolled sympathetic over activity (SOA) managed with dexmedetomidine infusion.

A 53-year-old male patient presented with complaints of dyspnoea, upper lip twitching, difficulty in swallowing and a local abscess around his right foot. He had a medical history of penetrating wound in his right foot 11 days before. Antibiotics and human tetanus immunoglobulin were administered and the wound was surgically debrided. Because of respiratory failure with SOA, he was intubated and mechanically ventilated. SOA persisted despite midazolam and magnesium sulphate infusion. Dexmedetomidine infusion was started on day 5 and SOA could be controlled successfully. On day 10, severe bronchopneumonia developed and the patient died on day 12.

The management of tetanus requires the prevention of tetanospasmin absorption, treatment of symptoms, stabilisation of autonomic instability, antibiotic therapy and control of the airway with assisted ventilation if indicated. Basal SOA is characterised by resting tachycardia and depression of bowel motility and bladder function, while severe SOA presents with fluctuating tachycardia, labile hypertension and sweating with and without stimulation.[4] Different methods to control SOA have been provided, including magnesium sulphate infusions, dantrolene infusions, intrathecal administration of baclofen, benzodiazepine, clonidine and dexmedetomidine.[5] Girgin *et al*.[3] reported use of dexmedetomidine in the management of tetanus for 7 days in six patients without any side-effects. According to the same author, its administration did not fully control the muscle spasm, but decreased their frequency and severity and reduced the use of sedative drugs to control muscle spasms and cardiovascular instability. In this case, we started dexmedetomidine infusion on the 5th day in the ICU, because midazolam and magnesium sulphate infusions did not efficiently control SOA. We observed that tachycardia (heart rate >110 b*eats/min*) and hypertension (mean arterial blood pressure >100 mmHg) decreased to acceptable normal levels and need for sedative drugs was reduced after starting dexmedetomidine infusion. However, we were not able to fully avoid their use. We used dexmedetomidine for 4 days. Although hypotension and bradycardia are the

most significant side-effects, we did not observe any of these and could control SOA during the first 3 days of the infusion. However, hypotension and bradycardia were observed on the 4th day of the infusion and hence we cut it off. The patient died because of nosocomial pneumonia despite multidrug antibiotherapy. Thus, dexemedetomidine can be a good alternative drug for resistant SOA during tetanus management.

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