Challenges to Safe and Effective Acute Pain Management in the Super Obese Patient (TH349-A)

Neha Kramer, Mayo Clinic, Rochester, MN
Keith Swetz, MD FACP FAAHPM, Mayo Clinic, Rochester, MN

Objectives
- Recognize the prevalence and impact of medically complicated obesity.
- Identify comorbidities that accompany obesity.
- Understand how pharmacokinetics are altered in the super obese patient.
- Outline acute pain management strategies for the obese patient.

Background: Acute pain management is challenging when patient-specific factors such as organ dysfunction or body habitus limit predictable analgesic pharmacokinetics due to narrow therapeutic window of efficacy and toxicity. Herein, we present a complex case illustrating barriers to safe, effective pain management in the super-obese patient with a limited life-expectancy.

Case Description: CH is a 28 year-old man with super obesity (314 kg; 177 cm; BMI-100) and complications including biventricular systolic heart failure, obesity-hypoventilation syndrome, and obstructive sleep apnea, who presented with large necrotic skin ulcers in intertriginous regions due to non-uremic calciphylaxis. Wound debridement caused agonizing pain, requiring escalating doses of opioids, benzodiazepines, and adjuvants. Analgesic titration was limited by concerns over airway protection and reduced respiratory reserve. Weight-based dosing was unreliable, as dosing on ideal body weight was ineffective. Lipophilic medications were used cautiously given large volume of distribution and concerns over delayed drug clearance. Wound debridement was limited by pain, resulting in further necrosis and superinfection, perpetuating the pain cycle. CH’s initial goals focused on life prolongation and improved pain control. A time-limited trial of aggressive interventions—including surgical debridement and tracheostomy placement with ventilator support—allowed for more creative pain control. Although pain control improved some with use of continuous opioid and ketamine infusions and peri-procedural propofol, wounds worsened/spread and ventilator support required ICU support. Goals of care were revisited by multidisciplinary teams including palliative care. CH transitioned to a comfort-directed approach, minimizing dressing changes, using parenteral hydromorphone and sublingual ketamine on home hospice, dying five days later.

Conclusion: Acute pain management in the super obese is especially challenging due to unpredictable pharmacokinetics, inability to rely on weight-based dosing, risk of airway compromise, and accompanying cardiopulmonary comorbidities. Understanding the pathophysiologic changes in this population are important to symptom management and delineating goals of care.