

Low body mass index and anesthetic–surgical risks

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NHMSFAP Update

The Non-Hospital Medical and Surgical Facilities Accreditation Program Patient Safety Incident Review Panel recently reviewed two incidents involving underweight patients.

While elevated body mass index (BMI) is now well known to increase surgical and anesthetic risks such as surgical site infection and difficult intubation, patients with low BMI (<20.5) may not be appreciated as having increased perioperative risk.

The BMI–surgical risk curve is U-shaped, and recent studies have shown increased 30-day mortality and malnutrition with those who have low BMI. Intraoperative hypothermia is also more difficult to manage in those with low BMI. The conditions associated with low BMI include old age, cancer, malnutrition, and eating disorders. These comorbidities are also associated with additional anesthetic considerations including hypoglycemia, hypoalbuminemia, intraoperative hypothermia, and possible sensitivity to neuromuscular blocking drugs due to low muscle mass.

Patients with low BMI scheduled for surgery should be seen in anesthetic consultation prior to the day of surgery to ensure appropriate work-up and assessment is completed and to confirm the patient is appropriate for surgery in the non-hospital setting.

The following information and recommendations are being shared with all facilities in the spirit of learning and improving patient safety. Medical directors are encouraged to discuss these articles with their clinical teams.

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3. Cereda E, Klersy C, Hiesmayr M, et al. Body mass index, age and in-hospital mortality: The NutritionDay multinational survey. *Clin Nutr.* 2017 Jun;36(3):839-47.
4. Leandro-Merhi VA, de Aquino JL. Determinants of malnutrition and post-operative complications in hospitalized surgical patients. *J Health Popul Nutr.* 2014 Sep;32(3):400-10.
5. Cho M, Kang J, Kim IK, et al. Underweight body mass index as a predictive factor for surgical site infections after laparoscopic appendectomy. *Yonsei Med J.* 2014 Nov;55(6):1611-6.
6. Hirose K, Hirose M, Tanaka K, et al. Perioperative management of severe anorexia nervosa. *Br J Anaesth.* 2014 Feb;112(2):246-54.
7. Poulida S, Hadzilia S, Stamatakis E, et al. Ambulatory anesthesia in a patient with anorexia nervosa: 2AP1-11. *Eur J Anaesthesiol.* 2012;29 Suppl.(50):33.
8. Kulshrestha A, Bajwa SJ. Nutritional and eating disorders: Clinical impact and considerations during anesthesia procedures. *J Med Nutr Nutraceut* 2012;1(2):77-82.