

Perioperative care map improves compliance with best practices for the morbidly obese

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Background. Morbid obesity can complicate perioperative management. Best practice guidelines have been published but are typically followed only in bariatric patients. Little is known regarding physician awareness of and compliance with these clinical recommendations for nonbariatric operations. Our study evaluated if an educational intervention could improve physician recognition of and compliance with established best practices for all morbidly obese operatively treated patients.

Methods. A care map outlining best practices for morbidly obese patients was distributed to all surgeons and anesthesiologists at 4 teaching hospitals in 2013. Pre- and postintervention surveys were sent to participants in 2012 and in 2015 to evaluate changes in clinical practice. A chart audit performed postintervention determined physician compliance with distributed guidelines.

Results. In the study, 567 physicians completed the survey in 2012 and 375 physicians completed the survey in 2015. Postintervention, statistically significant improvements were seen in the percentage of surgeons and anesthesiologists combined who reported changing their management of morbidly obese, operatively treated patients to comply with best practices preoperatively (89% vs 59%), intraoperatively (71% vs 54%), postoperatively (80% vs 57%), and overall (88% vs 72%). Results were similar when surgeons and anesthesiologists were analyzed separately. A chart audit of 170 cases from the 4 hospitals found that 167 (98%) cases were compliant with best practices.

Conclusion. After care map distribution, the percentage of physicians who reported changing their management to match best practices significantly improved. These findings highlight the beneficial impact this educational intervention can have on physician behavior. Continued investigation is needed to evaluate the influence of this intervention on clinical outcomes. (Surgery 2016;■:■-■.)

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WITH RECENT ESTIMATES that one-third of United States adults are obese,¹⁻³ the health care system will increasingly be confronted with the challenge

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of caring for overweight individuals. In particular, surgeons will increasingly be managing obese patients, as made evident by the fact that the number of bariatric procedures has skyrocketed from 8,597 in 1993 to 220,000 in 2008.^{4,5} While there is still debate in the literature as to whether obesity is an independent risk factor associated with operative morbidity and mortality,⁶⁻¹³ obesity—as a complex, multisystem, proinflammatory disorder that puts patients at increased risk for developing diabetes mellitus, cardiovascular disease, hypertension, and certain cancers¹⁴—has been recognized as a unique disease process that can complicate perioperative management.^{15,16}

In turn, several perioperative guidelines and protocols have been developed providing recommendations on how to safely manage obese patients in the perioperative period.¹⁷⁻²⁴ However,

the majority of these guidelines are focused on the management of obese patients who are undergoing bariatric operative procedures. Little is known regarding physician awareness of and compliance with these clinical recommendations for nonbariatric operative procedures. There have been few guidelines published that focus on the management of obese patients undergoing nonbariatric operative procedures,^{3,25} and there are limited data that comment on whether surgeons and anesthesiologists routinely take any special precautions in managing the obese, operatively treated patient. It is important to address this potential gap in knowledge to ensure that operation is as safe as possible for obese patients. The goals of this study were to report whether an educational intervention, namely the introduction of a perioperative care map, could improve physician recognition of and compliance with established best practices for morbidly obese patients undergoing all types of operative procedures.

METHODS

Beginning in July 2012, a committee comprised of bariatric and general surgeons, anesthesiologists, pulmonologists, and nursing representatives met to develop a perioperative care map with the goal of expanding best practices and precautions already provided to bariatric operation patients to all morbidly obese patients undergoing operations. The care map was designed with committee member input, a review of medical malpractice claims, and the pertinent medical literature. The completed care map outlines best practices for morbidly obese surgical patients during the preoperative, intraoperative, and postoperative phases of care (Table I).

For the preoperative period, elements of the care map include a supplemental informed consent for obese patients, a preoperative medical assessment form (POMAF), an anesthesia assessment, documentation regarding need for continuous positive airway pressure (CPAP), discharge planning assessment, a nursing admission assessment that evaluates a patient's eating habits and mobility, appropriate antibiotic administration, and venous thromboembolism prophylaxis.

In the intraoperative period, the care map recommends that there be 2 experienced anesthesia providers including an attending physician present for intubation, a readily available difficult airway cart and/or advanced airway technology, and appropriate sized surgical instruments for the procedure. The postoperative items of the care

map include anesthesia documentation of a post-procedure treatment plan based on intraoperative events, availability of a CPAP machine if needed, a pain management protocol for obese patients, postoperative nutritional assessment, postoperative nursing assessment, and availability of bariatric-appropriate beds, gowns, wheelchairs, and stretchers.

Although initially intended to be implemented for patients with a body mass index (BMI) ≥ 30 , due to a high volume of patients with a BMI ≥ 30 at each of the hospitals involved, the committee set the trigger parameters for inpatient and patients admitted the same day at a BMI ≥ 40 . The completed care map was distributed to all surgeons and anesthesiologists at 4 urban teaching hospitals in 2013. Educational material was distributed via e-mail and augmented with presentations at grand rounds and departmental meetings as appropriate. In some cases, small group and 1-on-1 presentations were arranged to ensure that all surgeons and anesthesiologists were aware of the new standards for caring for obese patients.

Pre- and postintervention surveys were sent to anesthesiologists and surgeons of different subspecialties at all 4 hospitals in 2012 and again in 2015 to evaluate changes in clinical practice (Table II). Physicians did not receive specific guidance in terms of how many care map elements had to be implemented in order to constitute a change in practice; it was expected that all elements would be incorporated into their patient management. Change in practice (yes versus no) between 2012 and 2015 on the 6 survey questions listed in Table II was analyzed using a χ^2 test. Results were analyzed for anesthesiologist and surgeons both together and separately.

Random chart audits also were performed post-intervention by the hospital insurance company's clinical patient safety analysts. To determine compliance with the best practices bundle, a random representative sample of charts was audited within 1 year of introducing the bundle (level I audit). Compliance criteria required 65% of the audited records to have at least 70% of the required elements present. A case would be considered compliant if at least 70% of the care map elements were completed; if >3 elements were missing, the case would fail.

The areas of compliance that were audited included completion of preoperative and postoperative anesthesia documentation, BMI ≥ 40 , supplemental consent form, POMAF, history of and preoperative documentation of CPAP use,

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