

## Editorial

# Evidence-based decision making

“Ritual without reverence is a mockery.” These words were first drummed into my head during my senior year in medical school, and now, a half-century later, they still ring loud and clear in my professional and personal decision making. In medicine, we so often perform ritualistically, basing our decisions upon the actions of our professors, role models, colleagues, or personal opinion.

The American Society of Anesthesiologists (ASA), in the early 1990s, set out to develop a series of practice parameters (now referred to as practice guidelines). Practice guidelines are systematically developed recommendations that are supported by analysis of the current literature and by a synthesis of expert opinion, open forum commentary, and clinical feasibility data. They are evidence-based and are meant to assist the practitioner and patient in making decisions about health care; they may be adopted, modified, or rejected according to clinical needs and constraints.

In 1996, the ASA appointed a task force to recommend a practice guideline for fasting prior to elective surgery, questioning whether the traditional preoperative clinical practice (particularly in the United States) of requiring patients to have nothing by mouth (NPO) was supported by the current literature. A national practice pattern survey had revealed that 60% of anesthesiologists adhered to the ritual of NPO after midnight, particularly for the adult patient [1]. This had not always been the agreed upon method of care. Throughout the world, the majority of anesthesiologists and surgeons for many decades followed the essence of the advice, given in 1883, by Baron Joseph Lister, who wrote in Holmes' *System of Surgery*, “While it is desirable that there should be no solid matter in the stomach when chloroform is administered, it will be found very salutary to give a cup of tea or beef-tea 2 h previously” [2].

In 1946, following publication of a paper by Mendelson that revealed an alarmingly high incidence of pulmonary aspiration in obstetrical pa-

tients receiving general anesthesia, the current practice of NPO after midnight became the established preoperative fasting regimen [3]. As ambulatory surgical procedures increased throughout the 1980s, recommendations surfaced for liberalization of preoperative fasting guidelines [4]. Clear liquids 2–3 h prior to an elective procedure did not appear to increase residual gastric volume or risk of pulmonary aspiration [5,6].

Perioperative pulmonary aspiration that results in morbidity or mortality is a rare event. In a prospective study of 215 488 consecutive general anesthetics administered to patients ASA physical status classification I–V (undergoing a wide variety of surgical procedures including those of a significant and invasive nature) at the Mayo Clinic (Rochester, MN) during the years 1985–91, the incidence of death after aspiration was 1:72 000, with none occurring in physical status I–II patients [7]. By applying the numbers to individual ambulatory surgery practice settings, assumptions can be reached on the anticipated frequency of this event. Do these statistics imply that pulmonary aspiration is not very important? Not at all; serious morbidity and significant costs are associated with pulmonary aspiration that does not result in death. However, there are no data that suggest that the use of medication or NPO after midnight decrease the risk of pulmonary aspiration.

The ASA guideline, adopted in 1998, addressed established rituals, using evidence-based methodology to provide detailed recommendations for preoperative fasting as well as the use of pharmacologic medications to modify volume and acidity of gastric content [8]. The guideline recommends that, for procedures requiring general anesthesia, regional anesthesia, or sedation/analgesia, it is appropriate to fast from intake of clear liquids for two or more hours; from intake of breast milk for four or more hours; from intake of infant formula for six or more hours; from intake of a light meal or non-human milk for six or more hours. The guideline notes that intake of fried or fatty foods or

meat may prolong gastric emptying time (both the amount and type of foods ingested must be considered). Additionally, the guideline does not recommend the routine preoperative use of gastrointestinal stimulants, medications that block gastric acid secretions, antacids, antiemetics, anticholinergics or multiple agents for patients who are at no apparent increased risk for pulmonary aspiration.

In summary:

- Pulmonary aspiration is rare in healthy adults and children;
- Patients with risk factors should have protected airways;
- Routine preoperative prophylaxis is not cost-effective;
- Adults and children should receive clear liquids up to 2 h prior to anesthesia;
- A guideline is not intended as a standard or an absolute requirement;
- The purpose of a guideline is to enhance the quality and efficiency of care, stimulate evaluation of individual practices, and reduce complications.

In the ambulatory surgery setting, we are seeing an increasing number of patients with health problems; we are seeing more invasive and longer surgical procedures. Patient safety is dependent upon evidence-based decision making.

## References

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