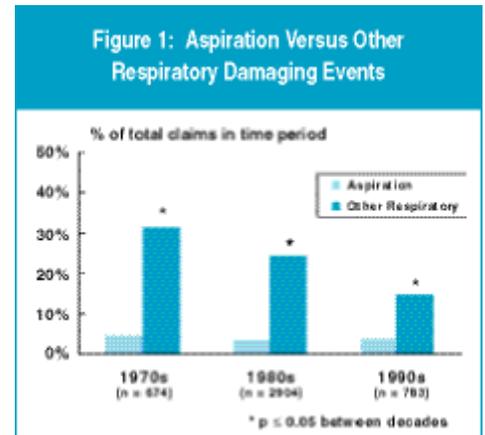


Full Text

One of the anesthesiologist's primary concerns is aspiration prophylaxis of stomach contents by patients undergoing either regional and general anesthesia. The ASA Closed Claims Project database was examined to determine the role of aspiration in patient injuries that resulted in a malpractice claim.

The ASA Closed Claims Project database presently consists of 4,459 closed malpractice claims retrieved from 35 insurance organizations that insure approximately 14,500 anesthesiologists. Of the total database, aspiration was either the primary or secondary damaging event (mechanism of injury) in 158 claims (3.5 percent). Aspiration was noted as the primary cause of the adverse event in about one-half of the 158 claims.



Aspiration occurred during induction in 67 (42 percent) of the cases; and in one-quarter (17) of these cases, cricoid pressure was documented as being utilized [Table 1]. In nine of these 17 claims, care was judged as appropriate by the reviewers so, presumably, aspiration occurred in some patients despite properly applied cricoid pressure. There were no claims in which a laryngeal mask was involved; this may be related to the fact that there were only 28 aspiration-related claims out of 783 claims in the 1990s [Figure 1]. In the database, the latest year any aspiration-related injury occurred was 1994, so the laryngeal mask airway might not have been in widespread use at the time. There were 11 (7 percent) claims for aspiration during regional anesthesia or monitored anesthesia care.

Table 1: Associated Factors in 158 Aspiration-Related Claims

Phase of Anesthesia	n = 158	%
Induction	67	42 %
Maintenance	28	18 %
Emergence/PACU	17	11 %
Obstetrical-related	33	21 %
Difficult intubation	20	13 %
Cricoid pressure	17	11 %
History of reflux	4	3 %

Some interesting trends were observed when the database was analyzed by the date of injury occurrence. The occurrence of aspiration-related claims as a proportion of all claims has remained constant over time [Figure 1]. In contrast, the overall proportion of other respiratory-related damaging events has decreased over time [Figure 1]. In the 1970s, respiratory mechanisms accounted for more than 30 percent of all damaging events; in the 1990s, that proportion had decreased to 15 percent.

Another notable trend over time is that the percent of aspiration-related claims for severe outcomes (death or brain damage) decreased from the 1970s to the 1980s, but then remained about the same in the 1990s as compared to the 1980s [Figure 2]. This is in contrast to all other (nonaspiration) claims in the database in which the incidence of death and brain damage has been decreasing significantly from the 1970s (54 percent of all claims) to the 1990s (30 percent) [Figure 2].

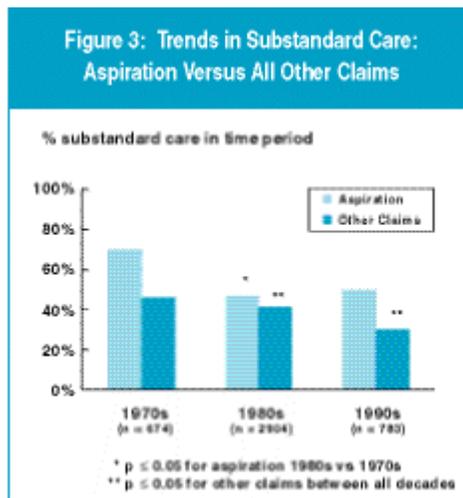
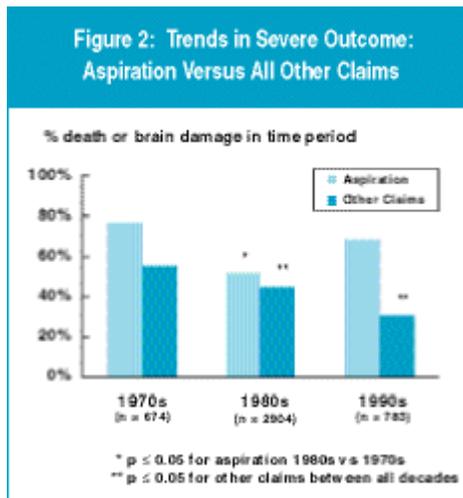
Although obstetrical (OB)-related aspiration occurred in 33 (21 percent) of all claims for aspiration [Table 1], there was a notable downward trend over time. In the 1970-79 time period, OB-related aspiration represented 43 percent of the respiratory claims compared to 20 percent in the 1980s and only 7 percent (two claims) of the aspiration claims in the 1990s. This suggests that strategies for prevention of aspiration in the OB patient were incorporated into clinical practice in the 1980s.

The overall decrease in nonaspiration respiratory-related damaging events [Figure 1] is due mainly to a decrease in claims in which inadequate ventilation and esophageal intubation were the critical events. This reduction in claims for inadequate ventilation and esophageal intubation occurred in temporal association with the incorporation of pulse oximetry and capnography into general clinical practice. In order to reduce the occurrence of patient injury due to aspiration, strategies other than those already incorporated into clinical practice may be necessary. It may be that aspiration-related patient injury is at an irreducible minimum. The fact that substandard care was involved in half the cases does suggest that severe aspiration is exceedingly rare when appropriate care is rendered.

Overall, care was judged by the reviewers as less than appropriate ("substandard") in 52 percent of the aspiration claims, appropriate ("standard") in 32 percent and the remainder impossible to judge. The role of substandard care in claims for injury due to aspiration decreased from the 1970s to the 1980s but has remained about the same in the 1990s [Figure 3]. On the other hand, the proportion of claims for nonaspiration-related injuries where the care was judged as substandard has been decreasing steadily from the 1970s through the 1990s [Figure 3].

Current clinical practice usually involves eliciting a preanesthetic history of the symptoms of esophageal reflux of gastric acid. If such symptoms are present, precautions are taken against aspiration during sedation and general anesthesia. Among the 158 claims reviewed here, reflux was mentioned by the reviewers as a factor in only four [Table 1], aspiration occurred during induction in two of these claims, maintenance with a mask in one, and in the other, aspiration occurred outside the operating room. These data suggest that either the current clinical practice of treating patients with a history of reflux is effective in preventing severe aspiration, or that esophageal reflux does not lead to severe aspiration in the first place.

The fact that aspiration-related injury is involved in only 3.5 percent of total claims in the ASA Closed Claims Project database is perhaps related to the fact that most cases of aspiration pneumonitis can be readily treated with antibiotics and, if necessary, mechanical ventilation and intensive care. Only when the aspiration results in death and brain damage is a claim of malpractice usually filed. The overall incidence of death and brain damage in claims for aspiration is 60 percent compared to 43 percent for the remainder of the claims in the database.



Conclusion

These data from the ASA Closed Claims Project database indicate that aspiration of gastric contents is not a major liability hazard for the anesthesiologist. Aspiration of gastric contents may well be a major source of anesthesia morbidity, but one could infer from these data that it does not often lead to severe injury such as brain damage and death

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