Retraction of Anesthesia Publications: A Systematic Review

Purpose:
Increasing awareness of scientific misconduct have prompted various fields of medicine, including orthopedic surgery, neurosurgery, and dentistry to characterize retracted articles within their respective fields. To date, we are not aware of any study describing retractions in anesthesiology research despite recent highly publicized cases of scientific misconduct. The purpose of our systematic review was to assess the reasons, rate, impact factor, research type/design, and country of origin of retracted anesthesia publications within the last 30 years.

Methods:
Based on a reproducible search strategy developed in other fields on the same topic, PUBMED was searched to identify retracted anesthesia articles. The search terms used were "anesthesia", "anesthesiology", "anesthesiologist", "anesthetic", "analgesia", "pain", "retraction of study", "retracted study", "notice of retraction", "retraction notice", "retraction of publication", and "retracted publication" in various combinations using the Boolean operator "and" between search terms. Studies identified were limited to the years between and including 1987 and 2017. Extracted data included the following: author names, year of publication, year of retraction, journal name, journal 5-year impact factor, research type (clinical or basic science), type of study (prospective, retrospective, review, randomized control trial), reason for retraction, method of retraction, number of citations, and presence of retraction watermark. Journal impact factor was determined using the Journal Citation Reports (JCR) database. The number of citations for each article was determined using the Web of Science database.

Results:
A total of 316 articles were included for data extraction. JCR journal impact factors ranged from 1.258 to 4.187, with the most widely cited article having been cited 197 times. All articles were retracted between 1997 and 2017. Three authors were associated with 83 percent of retracted articles. The vast majority of retractions were due to data fabrication (45 percent), closely followed by studies that lacked appropriate ethical approval (38 percent). Other reasons included plagiarism, self-plagiarism, publication error, and theft of intellectual property. Articles originated from several countries, with the majority from Germany, Japan, and the US.

Conclusions:
Identification of scientific fraud and misconduct is important as results from these studies may be permanently incorporated into the scientific literature, and subsequently, into clinical care. Retraction is but one tool in combatting misconduct, however, additional enhancements in transparency may be warranted. Implementation of a centralized repository of retractions, standardized methods for retractions, and education and outreach may be utilized to reduce the prevalence and impact of academic impropriety.