1.0 Abstract

Title

A Multicenter Registry on the Clinical Practice of Inhalation Anesthesia with Sevoflurane in China

Keywords

Sevoflurane, Inhalation anesthesia, General anesthesia

Rationale and Background

Until recently, there was a lack of understanding and Consensus among Chinese anesthesiologists of how they should practice general anesthesia with volatile anesthetics, since there was no recognized standard of inhalation practice. In August 2011, the Anesthesiology branch of the Chinese Medical Association launched the first version of the Chinese Consensus of Standard Clinical Practice for Inhalation Anesthesia (Consensus) in order to standardize the practice in China.

Research Question and Objectives

The proposed registry was designed to evaluate the current inhalation practice, 1 year after the Consensus had been released, and the related patient outcome.

Study Design

This was an open-label, non-comparative, observational, multicenter registry.

Setting

This registry evaluated sevoflurane anesthesia, including screening, induction, maintenance, emergence and follow-up within 24 hours post-operation.

Subjects and Study Size, Including Dropouts

This registry included 4100 patients who underwent general anesthesia in 36 hospitals across China. A total of 4004 patients completed the protocol, 96 patients were dropped-out from the registry based on the inclusion/exclusion criteria. A total of 414 investigators participated in the registry.

Variables and Data Sources

The primary endpoints included anesthesiologist satisfaction with the anesthesia and patient satisfaction with the anesthesia. The secondary endpoints included time to eye opening, time to extubation, cost of anesthetics and compliance of inhalation practice following the guidance of the Consensus.

All source data were derived from clinical charts, transmitted to either eCRF or paper CRF.

Results

Of the 4004 patients, 129 received sevoflurane during induction, 4004 received sevoflurane during maintenance. Anesthesiologist and Patient's satisfaction was recorded using a Numeric Analog Scale (NAS) from 0 (not satisfied at all) to 10 (completely satisfied). The mean NAS scores for anesthesiologist and patient's satisfaction with anesthesia were 9.14 ± 0.85 and 9.21 ± 0.91, respectively. When patients were divided into groups by MAC values during maintenance, a statistically significant difference was observed in the NAS scores for the anesthesiologist's satisfaction between groups ($P = 0.0154$). There was no statistically significant difference in NAS scores between groups for patient's satisfaction ($P = 0.3622$).

The mean time to eye opening and extubation were 17.30 ± 11.56 min and 20.28 ± 13.50 min, respectively. The mean cost of sevoflurane per hour was 117.33 ± 44.27 Yuan RMB/hour. The mean cost of anesthetics (including sevoflurane, propofol, analgesics, muscle relaxants, local anesthetics,

dexmedetomidine, midazolam and etomidate) per hour was 249.79 ± 168.01 Yuan RMB/hour.

The percentage of time during the maintenance period (excluding washout phase) in which sevoflurane end tidal concentration was below 0.6 MAC, was 17.82%. The percentage of time during the maintenance period (excluding washout phase) in which sevoflurane vaporizer settings were outside the range of 1.0 – 1.5 MAC was 42.31%.

Discussion

This registry showed that anesthesiologist's satisfaction with anesthesia associated with the MAC values during maintenance, while the registry showed that patient's satisfaction with anesthesia was not associated with MAC value during maintenance. This registry shows that higher MAC resulted in less variability of MAP and HR during the maintenance period as well as less frequency of adjustments of the vaporizer by the anesthesiologists.

Higher fresh gas flow rates during maintenance might lead to faster and more stable anesthesia. Vital capacity sevoflurane induction with priming of the breathing circuit might be the fastest induction technique.

Marketing Authorisation Holder(s)

[redacted]

Names and Affiliations of Principal Investigators

A total of 414 investigators participated in this registry. [redacted]

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