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All children were ASA P/S 1 or 2, 2–7 years of age, fasted and unmedicated, and scheduled for elective surgery after an inhalational induction with sevoflurane by face mask. Children were excluded if the parents refused consent, they were outside the age range, they had craniofacial or airway abnormalities, malignant hyperthermia or any other myopathies, recent upper or lower respiratory tract infections, and moderate to severe chronic cardiorespiratory disorders.

The breathing circuit consisted of a pediatric circle circuit (Vyaire™, Vyaire Medical, Inc. Mettawa, IL, USA) and a 1 L reservoir bag fitted with an appropriately sized cushioned facemask. After application of standard anesthesia monitors, anesthesia was induced by an attending anesthesiologist or nurse anesthetist with a gas mixture of 4 lpm nitrous oxide and 2 lpm oxygen. Once the end-tidal nitrous oxide concentration reached 50%, the vaporizer was dialed to 8% in a single step. Respiration continued spontaneously through the induction. If hypopnea or apnea occurred, respiration was assisted manually by the operator to maintain the end-tidal pCO_2 at 35-45 mmHg. Positive end-expiratory pressure was avoided. All vital signs, anesthetic concentrations and airway responses/unanticipated movements were recorded by an independent observer. Data collection ceased when the airway was manipulated.

During the induction, the vital signs together with the inspired and expired sevoflurane concentrations were recorded every 30 seconds for the first 5 minutes, and every minute thereafter until 10 minutes or until intravenous access was established. All notable patient responses, including unexpected movement or airway reactions, along with the time when they occurred.

A convenience sample of 12 children was selected for each anesthesia workstation a priori. A total of 24 patients completed the study, divided equally between the Dräger Apollo and Ohmeda Aisys workstations. All vaporizers were in clinical use at the time of the study; none of the vaporizers were recalibrated for this investigation.

Our operating rooms are divided equally between two floors. Dräger Apollo workstations were deployed in the operating rooms on one floor and children who were scheduled for surgery on that floor were anesthetized with the new workstations. The Ohmeda Aisys workstations

remained in the operating rooms on the second floor and children who were scheduled for surgery on that floor were anesthetized with the older workstations.

Post hoc, the data were analyzed using the unpaired Student's t test and two-factor repeated measures analysis of variance with the Sidak test for multiple comparisons for continuous measurements (GraphPad Prism 10.4.1, Boston MA) ($P<0.05$ was accepted).

The F_A/F_I ratios for sevoflurane, where F_A is the alveolar (expired) sevoflurane concentration and F_I is the inspired sevoflurane concentration at each designated time for each patient, were calculated. The mean (± standard deviation, SD) of the F_A/F_I ratios for each workstation are presented graphically. The mean (± SD) inspired sevoflurane concentrations over time, inspired sevoflurane concentration at 1 minute of induction, maximum inspired and expired sevoflurane concentrations for each patient during the induction period, and time to reach 90% of the maximum inspired concentration during the induction for each workstation were determined.