**Supplemental Digital Content ４.**

**Supplemental Table 1. Demographic characteristics of patients in each age subset and all patients**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Infants | Toddlers | Preschoolers | Schoolchildren | Total |
| Variable | (*n* = 13) | (*n* = 18) | (*n* = 18) | (*n* = 12) | (*n* = 61) |
| Female, *n* (%) | 7 (53.8) | 7 (38.9) | 7 (38.9) | 5 (41.7) | 26 (42.6) |
| Age (months), Mean (SD) | 6.5 (1.6) | 16.9 (3.6) | 46.3 (14.8) | 112.1 (37.9) | 42.1 (42.2) |
| Age (months), Range  | 4–9 | 12–23 | 24–69 | 73–175 | 4–175 |
| Weight (kg), Mean (SD) | 6.4 (1.1) | 9.3 (1.5) | 15.3 (3.0) | 29.2 (14.5) | 14.3 (10.4) |
| Weight (kg), Range  | 4.5–8.3 | 6.4–12.0 | 10.1–20.2 | 16.1–70.8 | 4.5–70.8 |
| Height (cm), Mean (SD) | 66.1 (4.4) | 77.4 (5.9) | 99.1 (11.5) | 129.6 (18.6) | 91.7 (24.9) |
| Height (cm), Range  | 59.5–72.8 | 66.8–93.7 | 82.1–117.0 | 111.0–167.2 | 59.5–167.2 |
| Surgery type, *n* (%) |  |  |  |  |  |
| VSDC | 8 (61.5) | 12 (66.7) | 7 (38.9) | 3 (25.0) | 30 (49.2) |
| VSDC and others | 1 (7.7) | 3 (16.7) | 1 (5.6) | 2 (16.7) | 7 (11.5) |
| ASDC | 0 (0.0) | 2 (11.1) | 7 (38.9) | 4 (33.3) | 13 (21.3) |
| Others | 4 (30.8) | 1 (5.6) | 3 (16.7) | 3 (25.0) | 11 (18.0) |
| SBS score at baseline, *n* (%) |  |  |  |  |  |
| −3 | 10 (76.9) | 17 (94.4) | 15 (83.3) | 11 (91.7) | 53 (86.9) |
| −2 | 1 (7.7) | 1 (5.6) | 3 (16.7) | 0 (0.0) | 5 (8.2) |
| −1 | 1 (7.7) | 0 (0.0) | 0 (0.0) | 1 (8.3) | 2 (3.3) |
| 0 | 1 (7.7) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (1.6) |
| Total exposure time (h), Mean (SD) | 30.68 (21.45) | 21.17 (12.05) | 17.88 (3.97) | 15.37 (4.86) | 21.09 (13.10) |
| Total exposure time (h), Range | 17.0–87.5 | 14.9–69.0 | 5.8–24.4 | 6.0–19.7 | 5.8–87.5 |
| Exposure time to extubation (h)a, Mean (SD) | 11.98 (6.93) | 6.72 (4.01) | 4.95 (3.59) | 4.62 (1.63) | 6.91 (5.11) |
| Exposure time to extubation (h)a, Range | 5.4–24.0 | 2.0–17.3 | 2.0–17.8 | 2.0–6.6 | 2.0–24.0 |
| Average exposure dose (μg/kg/h), Mean (SD) | 0.696 (0.154) | 0.795 (0.367) | 0.761 (0.296) | 0.601 (0.158) | 0.726 (0.278) |
| Average exposure dose (μg/kg/h), Range | 0.49–1.06 | 0.19–1.31 | 0.23–1.27 | 0.39–0.98 | 0.19–1.31 |
| Drugs during surgery (before DEX infusion) |  |  |  |  |  |
| Anesthetics, *n* (%) |  |  |  |  |  |
| Sevoflurane | 13 (100.0) | 17 (94.4) | 18 (100.0) | 12 (100.0) | 60 (98.4) |
| Propofol  | 2 (15.4) | 3 (16.7) | 8 (44.4) | 6 (50.0) | 19 (31.1) |
| Nitrous oxide | 1 (7.7) | 8 (44.4) | 4 (22.2) | 4 (33.3) | 17 (27.9) |
| Sedatives, *n* (%)  |  |  |  |  |  |
| Midazolam | 13 (100.0) | 18 (100.0) | 17 (94.4) | 12 (100.0) | 60 (98.4) |
| Muscle relaxants, *n* (%)  |  |  |  |  |  |
| Rocuronium Br | 10 (76.9) | 13 (72.2) | 14 (77.8)  | 10 (83.3) | 47 (77.0) |
| Vecuronium Br | 4 (30.8) | 5 (27.8) | 5 (27.8) | 2 (16.7) | 16 (26.2) |
| Analgesics, *n* (%) |  |  |  |  |  |
| Fentanyl  | 13 (100.0) | 18 (100.0) | 18 (100.0) | 12 (100.0) | 61 (100.0) |
| Acetaminophen | 3 (23.1) | 5 (27.8) | 3 (16.7) | 2 (16.7) | 13 (21.3) |
| Local analgesics, *n* (%) |  |  |  |  |  |
| Lidocaine  | 5 (38.5) | 7 (38.9) | 5 (27.8) | 4 (33.3) | 21 (34.4) |
| Ropivacaine | 0 (0.0) | 2 (11.1) | 3 (16.7) | 2 (16.7) | 7 (11.5) |
| Concomitant drugs (during DEX infusion), *n* (%) |  |  |  |  |  |
| Acetaminophenb | 4 (30.8) | 8 (44.4)  | 3 (16.7) | 4 (33.3)  | 19 (31.1) |
| Fentanyl (continued) | 12 (92.3) | 18 (100.0) | 14 (77.8) | 12 (100.0) | 56 (91.8) |
| Infusion of DEX, *n* (%) |  |  |  |  |  |
| Completed | 13 (100.0) | 18 (100.0) | 16 (88.9) | 12 (100.0) | 59 (96.7) |
| Discontinued | 0 (0.0) | 0 (0.0) | 2 (11.1)c | 0 (0.0) | 2 (3.3) |
| PK analysis | 11 (84.6) | 16 (88.9) | 11 (61.1) | 8 (66.7) | 46 (75.4) |

ASDC = atrial septal defect closure, Br = bromide, DEX = dexmedetomidine, PK = pharmacokinetics, SBS = state behavioral scale, SD = standard deviation, VSDC = ventricular septal defect closure.

aExposure time from start of administration to extubation or 24 h after (h).

bAcetaminophen was approved by the protocol; however, two protocol deviations were recorded (administration before extubation; one toddler and one schoolchild).

cDiscontinuations were attributed to the study treatment last received.