The pharmacokinetics of desflurane makes it a preferred inhalational agent with low flow techniques. However, vigilance of the anesthesiologist is of prime importance.

Methodology/Description: After approval of institutional ethics committee and informed consent, 60 ASA I/II patients undergoing elective neurosurgical procedures were divided randomly into two equal groups to receive general anesthesia with low (1L) and medium (1.5 L) fresh gas flow (50% O_2 and 50% N_2O). Intraoperative monitoring of hemodynamic parameters and respiratory gases was done and noted at fixed intervals. Statistical analysis of data was done using SPSS.

Results: Demographic data was comparable in both the groups. Hemodynamic parameters at laryngoscopy, change of flows, and emergence were within physiological range. Hemodynamic stability was not affected by change in flows in both the groups. During maintenance, fraction of inspired oxygen (FiO_2) decreased gradually, but at no time interval, delivery of hypoxic gas mixture (FiO_2< 30%) was observed. Time taken for extubation was comparable in both the groups.

Conclusion: With vigilant monitoring of respiratory gases and hemodynamic parameters, and timely interventions for change of flows, dial settings, etc., the threat of delivery of hypoxic gas mixture in low-flow anesthesia can be totally eliminated. This technique with all its advantages can be used safely in neurosurgical cases.

Keywords: fraction of inspired oxygen, anesthesia, hemodynamic parameters

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A030 An Evaluation of Procedural Sedation Techniques in Duchenne Muscular Dystrophy Patients Undergoing Stem Cell Therapy

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Introduction: Anesthesia in Duchenne muscular dystrophy (DMD) poses many challenges, because of poor cardiorespiratory function, weak airway muscles, macroglossia, or obstructive sleep apnea. The present study was undertaken to evaluate safety as well as efficacy of procedural sedation techniques, and to assess the effect on hemodynamic and respiratory parameters in patients of DMD.

Methodology/Description: The present prospective, observational study was performed in 54 consecutive male patients of DMD presenting for stem cell therapy. After institutional ethics committee approval, patients coming for elective bone marrow aspiration and intrathecal catheterization as a part of stem cell therapy with age > 5 years were included. Patients unwilling for consent and patients requiring general anesthesia were excluded. Drugs and dosages used were noted. Hemodynamic parameters were noted every 5 minutes. Sedation levels were monitored using Ramsay sedation score every 10 minutes. Statistical analysis was done using the unpaired "*t*" test and *p* value of < 0.05 was considered significant.

Results: The age range was from 6 to 32 years with average of 11.59 years. Most commonly used drugs for procedural sedation were midazolam, dexmedetomidine infusion, and ketamine. Hemodynamic stability was maintained in all patients. Respiratory rate and end-tidal CO_2 were maintained close to baseline ($p > 0.05$). No cardiorespiratory adverse events were noted.

Conclusion: Dexmedetomidine and ketamine provide good procedural sedation without causing cardiorespiratory depression, maintain airway reflexes, and offer adequate analgesia along with local anesthesia. The study subject draws attention to an often-neglected area and has scope for change in future practice.

Keywords: Duchenne muscular dystrophy, procedural sedation, cardiorespiratory depression

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A031 Effectiveness of Three Regimes of Sedation in Children for Magnetic Resonance Imaging: A Clinical Trial

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Introduction: Dexmedetomidine, an α_2 agonist is extensively used for pediatric magnetic resonance imaging (MRI) sedation, but is known to cause prolonged recovery when used as a sole sedative agent. Stand-alone propofol can cause hypotension and respiratory depression at times. A new regimen exploiting the properties of these drugs was considered to allow faster recovery and minimize adverse events.

Methodology/Description: One hundred fifty children between the age of 2 and 12 years were randomly allocated to any of the three groups. Group receiving dexmedetomidine bolus and infusion (group D, $n = 50$) or propofol bolus and infusion (group P, $n = 50$) or group receiving propofol bolus followed by dexmedetomidine infusion (group PD, $n = 50$) for sedation. Effectiveness of these regimens was assessed with respect to recovery characteristics, hemodynamics, and respiratory parameters.

Results: Recovery time in group PD (15 ± 7.0 min) was comparable to group P (17.35 ± 7.4 min) unlike values in group D (27.58 ± 8.09 min) with a statistical significance ($p < 0.05$). Emergence delirium scores were significantly less in group PD (5 ± 1.08) and group D (5.6 ± 2.4) unlike scores in-group P (9 ± 2.43, $p < 0.05$). Children in group P had lower blood pressure and heart rate values in comparison to the other groups. The quality of MRI was comparable between all the three groups.

Conclusion: The regimen with propofol bolus and dexmedetomidine infusion provided adequate sedation and better recovery characteristics in children aged between 2 and 12 years without hemodynamic and respiratory complications, as compared with the use of either agent alone.

Keywords: dexmedetomidine, propofol, MRI

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A032 Comparative Assessment of Variation in Motor Evoked Potential Recordings in Upper versus Lower Limbs under Propofol-Based Anesthesia

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Introduction: Different anesthetic agents including propofol exhibit variable motor evoked potential (MEP) recordings in upper and lower limbs. Hence, we designed this study primarily to compare effects of propofol on amplitude and latencies in upper versus lower limbs and secondarily to compare requirement of current and stimulating pulse needed to elicit same.

Methodology/Description: After ethics committee approval and informed consent, 25 ASA I/II patients, 18 to 65 years of either gender, undergoing elective neurosurgery were included in a 6-month study. Sample size was calculated using previous studies and power size calculation, 80% statistical power, type-II error = 0.20, Alpha error = 0.05. We performed transcranial electrical stimulation of motor cortex using 200 to 400 V current with 4 to 6 stimulating pulses. MEP responses recorded in 50 upper and lower limbs at abductor pollicis brevis and tibialis anterior, respectively. Baseline MEPs were recorded after standardized induction of anesthesia, before atracurium and repeated at BIS 40 to 60 under propofol anesthesia. We used paired *t*-test for statistical analysis using SPSS software version 11.5.

Results: Mean age 43.24 years, ASAI /II 10:15 and M:F 13:12. There was a reduction in mean amplitude and increase in mean latency under propofol anesthesia as compared with baseline. These changes were statistically significant in lower limbs ($p < 0.05$). Overall success rate of MEP recordings was higher in upper limbs. The current and stimulating pulse needed to elicit responses was also higher in lower limbs. Limitations: single institutional study, smaller sample size.

Conclusion: Thus, propofol-based anesthesia appears to suppress MEP recordings in lower limbs as compared with upper limbs.

Keywords: anesthesia, propofol, MEP

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A033 Anesthetic Challenges for Intraoperative Neurophysiological Monitoring under General Anesthesia

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Introduction: Intraoperative-neurophysiological monitoring (IONM) is important to delineate the epileptogenic lesions from the eloquent cortex. Many anesthetic agents have significant interference in monitoring of electrocorticography (ECoG), somatosensory evoked potentials (SSEPs), and motor evoked potentials (MEPs). Complete relaxation with moderate depth is needed for ECoG, while muscle relaxation will not elicit MEP. Hence, a narrow balance is required to conduct recording of ECoG, SSEP, and MEP simultaneously. Here, we present successful management of two such cases under general anesthesia where judicious use of anesthetic agents provided least interference to IONM.

Methodology/Description: A 7-year-old child presented with premotor cortical dysplasia posted for right frontotemporal craniotomy. Aim was to develop anesthetic technique to elicit adequate ECoG and MEP/SSEP waveforms. The patient was maintained on desflurane (MAC 0.4–0.5) with oxygen-nitrous oxide (N_2O), dexmedetomidine (0.05–0.07 µg/kg/min), and intermittent fentanyl at 1 µg/kg. Depth of anesthesia was lightened for ECoG recording by shutting off N_2O 10 minutes prior and intermittent succinylcholine was given to avoid motor movement. This provided short duration relaxation and did not interfere with ongoing MEP and SSEP recordings. Similar case was performed in a 28–year-old young adult where depth of anesthesia was maintained with propofol infusion (50–75 µg/kg/min) and dexmedetomidine and fentanyl boluses. Total intravenous anesthesia was sufficient to provide adequate plane for ECoG, MEP, and SSEP recordings continuously. No form of muscle relaxation was used in this case. Depth of anesthesia was monitored by bispectral index (BIS) and supplemented with scalp block in both cases.

Conclusion: Hence, IONM can be used conducted under general anesthesia successfully.

Keywords: electrocorticography, evoked potentials, general anesthesia, depth of anesthesia