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Practice of documenting pre-anaesthesia assessment chart in regional teaching hospital. A concern for patient safety

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Background and Goal of Study: Detailed pre-anaesthetic evaluation, proper and detailed documentation, record keeping for easy access is prime responsibility of every anaesthesiologist. Proper and complete documentation is extremely essential for improving patient's outcome and for medico-legal aspects. It is also a marker of provision of quality care.

Objective: To identify the quality of preoperative assessment and documentation of patients coming for elective or emergency surgery. The required information including history, examination and investigations and other applicable information.

Materials and Methods: Design, setting and participants: Prospective audit of medical records of 100 patients following all kinds of surgical procedures in our hospital during period of one month, data collected by all authors in their own area of work daily.

Results and Discussion: During the study period total of 100 patients' charts were reviewed, no chart was found completely filled. The most (>90%) completed documentation was of the information addressogram, allergies (even with not any), airway examination and ASA classification. Major (<50%) lack of information was found of pre-operative vital signs, timings of empty stomach pre-operatively, BMI, lab investigations and name of the surgeon. The variables like radiology examination, ECG, weight, procedure to be done, past medical or surgical history and ongoing medications were not reported in between percentages of 22-48%. There was no significant difference between the trends for elective or emergency surgeries irrespective of daytime or out of hours surgeries.

Conclusion: Main recommendations: The pre-operative assessment and documentation of the patient's general health and previous conditions are of utmost importance for anaesthetist, not only for planning and provision of safe conduct of anaesthesia and post-operative management, also for medico-legal matters. More emphasize on comprehensive documentation of all information and refreshing the importance of documentation achieved is highly recommended.

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Postanaesthetic visits recording: benefits and obstacles

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Background and Goal of Study: Postanesthetic visits (PAVs) allow detection of anesthesia related complications and increase patient satisfaction. However, limited information is available regarding current practice of PAVs. Goal of our study was to record and evaluate PAVs.

Materials and Methods: A PAV service was initiated in our department in January 2018. Anaesthesiologists should record in the PAV book any performed surgical anesthesia by date, patient's name and age, type of surgery, anesthetic technique, anaesthesiologist's and surgeon's name. PAV should be performed within 24 h recording pain, PONV, sensory/motor block and other potential complication.

Results and Discussion: We analysed PAVs for cesarean sections (CS) for the year 2018. Just 761 CS (67%) were recorded in the PAV book out of 1139 registered in the formal archive. PAV was performed only to 421 patients (55%). From our data analysis it occurred that regarding anesthesia technique, general anesthesia (GA) was carried out in 95 parturients (12%). Among them, 5 were epidurals for vaginal delivery that failed to convert to surgical anesthesia and 17 were incomplete spinals. Regional anesthesia (RA) was performed to 666 parturients (88%); 604 spinals, 59 epidurals, 3 combined spinal-epidurals. Pain ≥ 5 was recorded in 79 patients (19%); 73 after spinal and 6 after GA. PONV was reported by 8 patients (8%); 7 after spinal and 1 after GA. Sensory/motor block was recorded in 3 patients after RA. It became evident that extra record keeping, lack of time, emergency situations and lack of personnel impeded regular PAVs, even with a dedicated service. On the other hand, PAVs contributed to detection of complications, facilitating their management. Additionally, the recorded data were used to guide future practice. GA reduction was considered a measure of quality improvement along with the need for more effective postoperative pain management. Furthermore, the observed absence of post dural puncture headache emerged as a very positive outcome.

Conclusion: Recording and analyzing PAVs may establish or guide changes in current anesthetic practice aiming to improve quality. Lack of technical and personal facilities seems to be major obstacles for adoption in every day practice.

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A successful anesthetic management without muscle relaxants in a patient undergoing re-scheduled surgery after intraoperative anaphylaxis due to rocuronium

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Background: Perioperative anaphylaxis is mostly induced by non-depolarizing muscle relaxants (1, 2). We report a successful anesthetic management without muscle relaxants in a patient with an anaphylaxis history due to rocuronium.

Case Report: A 73-year old male patient was diagnosed as gallbladder cancer and was scheduled for extended cholecystectomy. He had no history of general anesthesia or allergy except for skin redness by povidone-iodine. In the first surgery, after insertion of an epidural catheter with lidocaine, remifentanyl, propofol and rocuronium were used for induction. Immediately after intubation, a remarkable hypotension of 30mmHg in systolic refractory to ephedrine and phenylephrine was observed, which developed into cardiac arrest. He was successfully resuscitated with epinephrine, and after resuscitation, a pale redness on the chest was observed. An emergent TEE examination revealed temporary basal diffuse hypokinesia with LVEF of 35%, which was not compatible with the findings of ischemia. Judging from the sudden hypotension and the redness, anaphylaxis was suspected. The surgery was suspended and he was transferred to ICU. The measurements of histamine, tryptase, and IgE antibodies of the medications used during the surgery were within normal range and negative, but rocuronium was found positive with the pin prick test. We had a thorough discussion and planned the anesthetic method for the second surgery after two months. In the second surgery, 0.75% of ropivacaine was used for the purpose of epidural analgesia and abdominal muscle relaxation, while remifentanyl and midazolam were used for general anesthesia. Sevoflurane was also used to support muscle relaxation. The surgery was successfully completed and he discharged with no complications.

Discussion and Learning points: Since the common chemical structure of non-depolarizing muscle relaxants is also included in the daily materials such as shampoo (3), patients may possibly be sensitized in daily life, making it hard to predict intraoperative anaphylaxis from the anesthetic history. Appropriate diagnosis, effective treatment, and careful planning for the future anesthesia for patients with perioperative anaphylaxis history are important.

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Incidence of Postoperative Residual Neuromuscular Blockade - A Multicenter, Observational Study in Portugal (INSPIRE 2)

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Background and Goal of Study: Residual neuromuscular blockade (RNMB) is a widely recognized complication associated with the use of neuromuscular blocking agents (NMBA). RNMB can result in significant clinical consequences that may increase postoperative morbidity and mortality. A study in 2010 reporting an incidence of 26% of TOFRatio<0.9 (TOFR) at post anaesthesia care unit (PACU) arrival, highlighted the dimension of this complication in Portugal¹. Awareness of this problem and sugammadex widespread use since then, may have changed this reality. The primary objective of this study was to determine the current incidence of RNMB defined by a TOFR<0.9 at PACU arrival. Secondary objectives were the possible association of RNMB with use of reversal agents and intraoperative monitoring of neuromuscular blockade (NMB).

Materials and Methods: Multicentre, observational prospective study involving adult patients undergoing elective surgical procedures requiring general anaesthesia with NMBA (from 07/18 to 06/19). 366 patients were included from 10 Portuguese hospitals. After patient arrival in PACU, an investigator not involved in anaesthesia care, applied 3 consecutive TOF stimulations with 15 seconds interval

(TOFscan®). Demographic data, vital parameters at arrival in PACU, clinical history, ASA classification and perioperative relevant medication data were also collected. RNMB was defined as TOFr<0.9.

Results and Discussion: Of the 366 patients, 20 had TOFr<0.9 representing an incidence of 5.5%. Intraoperative monitoring of NMB was performed in 53% of patients. NMB was reversed with sugammadex in 340 patients (93%), neostigmine in 12(3%) and 14(4%) had no drug reversal. There was no statistically significant association between RNMB and intraoperative monitoring of NMB ($P=0.752$). Association between RNMB and reversal drugs or no reversal couldn't be established due to the low RNMB incidence and the low number of patients with neostigmine or without reversal drugs. Although in 2010 only 7 of 350 patients had sugammadex, intraoperative NMB monitoring data was not collected, so we can't exclude that differences in monitoring could also played a role on the improvement in RNMB, beyond the widespread use of sugammadex.

Conclusion: A significant reduction in RNMB has been achieved in the last 8 years in Portugal but we believe that an improvement is still possible towards making RNMB a "never event".

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Sugammadex Associated Hypotension, Bradycardia, Asystole and Death: A Case Report

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Background: Sugammadex, introduced in Europe in 2008, is a well tolerated drug. There are several recent reported events in literature of hypotension, bradycardia and asystole immediately after its administration. In 2015 FDA approved sugammadex, a first and unique selective (NDSMR) binding agent with a greater affinity for rocuronium and vecuronium, as a reversal agent.

Case Report: A 68 kg, 82-year male, 150 pack-year smoker, COPD and lung cancer post surgery and radiation. No significant cardiovascular history. January of 2019 cystoprostatectomy which was complicated by a chronic SBO since March of this year treated with a venting g-tube and TPN. Induction occurred with lidocaine 2% 5 ml, propofol 50 mg, rocuronium 50 mg and fentanyl 50 mcg and was intubated with a 8.0 ETT. An arterial line was placed. Anesthesia was maintained with Desflurane, additional 100 mcg fentanyl and 1.5 mg hydromorphone was given, procedure lasted 3 hours 40 minutes. At about 30 minutes prior a combination of 0.25% Bupivacaine and Exparel was infiltrated into the abdominal incision. Sugammadex 200 mg was given. Shortly after he became bradycardic. A PEA was noted and CPR started with chest compressions and. The code lasted a total of 1 hour 50 minutes. Multiple doses of epinephrine were given, twice he eventually converted to ventricular rhythms that permitted defibrillation, but he was unable to sustain a blood pressure despite a norepinephrine infusion.

Discussion: Despite a functional arterial line it took twelve minutes before hypotension most likely caused by sugammadex administration was recognized and treated. Patient became hypotensive several minutes before becoming bradycardic and asystolic. 15 minutes into the CPR blood gas pH=7.27, pO₂=462, pCO₂=30, lactate=5.6, platelet=25. Low platelets and drop in hemoglobin by 2 points in the absence of bleeding was indicative of initiation of DIC. Bupivacaine cardiac toxicity is possible, however, the temporal association between sugammadex administration and hypotension can't be ignored. It is unlikely that the toxic effect of bupivacaine administration exactly peaked with sugammadex administration.

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Learning points: Sugammadex can cause substantial and prolong hypotension.

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Intraoperative anaphylaxis related to rocuronium: a case report

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Background: The primary cause of anaphylaxis in 50%-70% of patients under anesthesia is neuromuscular blocking drugs (NMBD). Rapid recognition and immediate management are essential to prevent mortality and morbidity.

Case Report: ASA III, 42-yr-old-woman was scheduled for right nephrectomy and cholecystectomy. She had positive family allergy history and allergy tests positive to several antibiotics and anesthetic agents: propofol, fentanyl, pancuronium and succinylcholine. We administered corticosteroid and antihistamine prophylaxis before induction. General anesthesia with continuous remifentanyl infusion and epidural analgesia was of choice. Induction was with midazolam, remifentanyl and sevoflurane. Due to inadequate depth of anesthesia, we gave 50 mg of rocuronium prior to intubation. Thirty minutes after beginning of surgery we repeated 20 mg of rocuronium. Shortly after, she became profoundly hypotensive, with low end-tidal CO₂ and high peak inspiratory pressure. We immediately stopped all anesthetic agents, maintained the airway and ventilated the patient with 100% of O₂. We started resuscitation with fluids and continuous phenylephrine and epinephrine infusions. Aminophylline, magnesium sulfate, calcium gluconate, lidocaine and a repeated dose of corticosteroids and antihistaminic agents were given. We maintained anesthesia with sevoflurane, ketamine and epidural analgesia until the end of surgery. The patient was stabilized, extubated and transferred to the ICU for postoperative monitoring.

Discussion: According to literature, rocuronium is a potential anaphylactic agent from the intermediate-risk group that induces Type I hypersensitivity reaction in which the IgE antibodies cause inflammatory mediators to be released. Recently, side-effects such as anaphylaxis have been reported due to its increased use. We have to recognize and treat this life-threatening condition according to guidelines.

Learning points: It is important that we monitor the use of rocuronium closely and ensure that any possible reactions are investigated and reported appropriately in order to facilitate the gathering of adverse events data.

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4980

Transient and acute onset atrial fibrillation with rapid ventricular response after reversing of neuromuscular block: unexpected complication of Sugammadex

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Background: Sugamadex is a gamma-cyclodextrin, the first selective agent in clinical use since 2008 for reversing neuromuscular blockade induced by steroidal non-depolarizing muscle relaxants with superior affinity for rocuronium. It is aimed to present a case of sudden onset of rapid ventricular responded atrial fibrillation due to the use of sugammadex.

Case Report: 69-year-old patient, with no comorbidities and medication history, had first and mostly second degree %60 of body flame burns (without inhalation burn) was admitted to hospital. In laboratory tests, electrolyte and other parameters were within normal limits and she had sinus rhythm. As the patient did not have enough peripheral vascular access due to burns on the extremities, the central venous catheter was placed and the patient was taken into operation. Debridement and grafting was performed uneventfully under general anesthesia (used rocuronium as a neuromuscular blocker) by plastic surgery. The patient was treated with appropriate fluid regimen during the operation and there was no hemodynamic disorder or arrhythmia. After the surgery, sugammadex (2mg / kg) was performed from the central venous catheter before extubation and after that, atrial fibrillation with rapid ventricular response developed within seconds. The patient was treated with an appropriate dose of esmolol (1 mg/kg) and ,due to insufficient, amiodaron (300mg in %5 Dextrose). As a result of this treatment, sinus rhythm was obtained and the patient was send to the burn center after waking up without any problem.

Discussion: Arrhythmias due to electrolyte abnormalities are common in burn cases. The patient had normal sinus rhythm with normal laboratory values in preoperative and intraoperative period, and sudden onset of atrial fibrillation (has not been encountered in the literature) developed after sugammadex It has