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SORTS OF ANAESTHESIA

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commentary

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WHAT IS ANESTHESIA?

Anesthesia is the utilization of soporifics (medications) to maintain a strategic distance from the inclination of agony or another sensation amid surgery, dental methods or other therapeutic techniques that may be agonizing for transitory condition of compass. The patient under the impact of anesthesia is called as anesthetized ^[1-3].

A soporific is a medication that offers ascend to anesthesia (provisional phase of obviousness). Soporific can likewise be characterized as any specialists that create a neighborhood or general loss of sensation, including agony. Analgesics accomplish this outcome by following up on the mind, central nervous system (CNS) fringe sensory system (PNS) to anticipate reactions to tangible incitement. The inert state along these lines impelled is known as anesthesia ^[5-7].

While depicting the capacity of anesthesia and its impact on the body the method for its usefulness The American Culture of Anesthesiologists (ASA) depicted and contrasted the sensory system with an office's phone framework — with the cerebrum as the switchboard, the nerves as the links, and the body parts feeling torment as the telephones ^[8-10].

Diverse sorts of analgesics may be utilized for your surgery based upon your own medicinal history, the kind of surgery you are booked for, your specialist's inclination and your anesthesiologist. Anesthesiologist will screen the patient nearly with a wide range of anesthesia. In light of the examination of patient breathing, blood oxygen level, heart rate, circulatory strain, EKG and temperature anesthesia will be incited ^[11-13].

Presently a day's current surgery is conceivable as a result of the act of sheltered, very much created and powerful anesthesia. Routine of sheltered and viable anesthesia under therapeutic specialists has prompted dispense with agony amid surgery or other restorative methods. Anesthesia is managed by an anesthesiologist, a specialist who experiences quite a while of particular preparing after the finish of medicinal school ^[14-16].

Anesthesia is infrequently regulated by a guaranteed enlisted attendant anesthetist (CRNA). A CRNA is an enrolled attendant who has experienced propelled preparing in anesthesia. Ensured enrolled

attendant anesthetists have the capacity to oversee anesthesia amid a surgical methodology, yet more often than not work under the supervision of an anesthesiologist^[17-19].

Affirmed enrolled attendant anesthetist (CRNA) are all around prepared and qualified to direct anesthesia according to the need, to do surgical or restorative methods without torment. As these attendants are proficient to oversee anesthesia then to by and large they work under the supervision of anesthesiologist^[20-22].

Soporifics are regulated through an alternate mode. Analgesics are directed intravenously, through breathed in gasses or vapors to incite anesthesia. Sedatives influence the sensory system in different routes by blocking nerve driving forces and, accordingly, torment^[23].

In view of the sedative properties and their organization mode they are named:

In view of sedative properties, method of organization and their impact on individual, anesthesia are primarily ordered into 3 sorts. They are:

Local Anesthesia

Local anesthesia affects loss of sensation by reversibly blocking transmission of nerve driving forces along the nerves in a little piece of the body which is to be worked. Nearby anesthesia numbs a piece of the body without loss of cognizance where the patient is conscious and alarm. Neighborhood anesthesia is for the most part used to work minor surgeries. For instance, if a surgical strategy is to be performed on the right leg, a neighborhood soporific is regulated to impel that leg without influencing whatever other piece of the body^[24-27].

This sort of anesthesia is by and large used to join little injuries. By and large neighborhood anesthesia is managed intravenously which may be difficult for quite a while though these agony or distress goes on for a brief time of time and soporific starts its impact impelling loss of sensation in a piece of the body which is to be worked in a brisk compass^[28,29].

Nearby anesthesia is likewise utilized as a part of type of a cream to numb and counteract torment in the piece of the body which is to be worked^[30].

For the most part spray soporific is utilized to numb within the throat and skin while neighborhood analgesic cream is connected at first glance region of the skin which is to be worked to make that a piece of the skin numb to anticipate torment^[31-35].

A portion of the neighborhood soporifics

- Bupivacaine
- Levobupivacaine
- Ropivacaine
- Mepivacaine
- Dibucaine
- Procaine
- Lidocaine (otherwise called Lignocaine)
- Procaine
- Amethocaine
- Cocaine

Regional anesthesia

Regional anesthesia is the infusion of an analgesic used to prompt anesthesia in a vast territory or area of the body like around real nerves or the spinal string to counteract torment and evade distress

amid the surgery. Territorial anesthesia is all the more regularly utilized for broad and obtrusive surgery. Areas, for example, lower piece of the body, surgical methods including body parts like prostate surgery, caesarian segments and operation of the legs includes the utilization of territorial analgesics to actuate anesthesia to square the torment. Most ordinarily epidural and spinal, the two analgesics are polished to instigate local anesthesia ^[36-45].

On the organization of territorial anesthesia its desensitizing impact can keep going for 8 to 12 hours relying on the dosage as it gives muscle unwinding and postoperative agony help ^[40-45].

Real sorts of Regional anesthesia include:

• Spinal

Spinal anesthesia is regularly utilized for lower stomach, pelvic, rectal, or lower limit surgery, where a solitary measurement of soporific prescription is infused into the spinal liquid in the lower back with the assistance of an exceptional needle to instigate deadness ^[46-50].

• Epidural and caudal anesthesia

It is like a spinal sedative where a soporific operators is infused into the spinal liquid with an uncommon needle and is regularly utilized for surgery of the lower appendages and amid work and labor. This analgesic is regularly used to give long haul torment alleviation like amid labor ^[50-54].

Nerve Squares are utilized to piece torment at a particular site. By infusing a neighborhood soporific into or around a particular nerve or gathering of nerves that transmits sensation from a whole locale, torment alleviation can be confined to the site of agony. This sort of anesthesia accommodates torment control amid and after a method with insignificant reactions ^[55-58].

General Anesthesia

A general analgesic is a medication that has the ability to realize a reversible loss of cognizance acting basically on the cerebrum and focal sensory system (CNS). Anesthetists direct these medications to prompt or keep up broad anesthesia to encourage surgery by easing agony. Medications used to actuate anesthesia are given in vapors or gasses (in inhalational structure) or in infusion (intravenously) ^[59-62].

General analgesics are further arranged into breathed in operators and intravenous specialists (non-opioid) ^[54].

Unpredictable soporific specialists are in fluid structure at room temperature; however gets dissipate effortlessly for organization by inward breath. Unpredictable soporifics are of very hydrophobic in nature the perfect unstable sedative specialists are scentless or wonderful simple for the patient to breathe in; safe for all ages tolerant and does not metabolized ^[63-65].

Unpredictable soporifics are favorable from various perspectives shoddy to fabricate; simple to store and handle, with a long timeframe of realistic usability; agreeable to oversee and screen with existing gear ^[66].

General analgesics practically speaking are recorded beneath:
Breathed in analgesic specialists

An inhalational analgesic is an unpredictable synthetic compound having general soporific properties that can be conveyed by method for inward breath. Breathed in sedatives are controlled by anesthetists through an anesthesia cover, laryngeal veil aviation route or tracheal tube ^[67-70].

- Xenon
- Methoxyflurane
- Nitrous oxide
- Sevoflurane
- Desflurane
- Enflurane
- Halothane
- Isoflurane

Intravenous analgesic specialists (non-opioid)

There are numerous medications that can be utilized intravenously to create anesthesia. These non-opioid medications are controlled into the veins to prompt anesthesia ^[71-75].

- Benzodiazepines
- Diazepam
- Lorazepam
- Midazolam
- Etomidate
- Ketamine
- Propofol
- Barbiturates
- Amobarbital
- Methohexital
- Thiamylal
- Thiopental

General anesthesia is utilized for surgical methods where provincial and neighborhood analgesics are not ready to instigate anesthesia. General anesthesia is painstakingly directed and checked as it includes in confounded surgical methods ^[76-80].

In this method patient is totally oblivious with no memory of the surgical strategy that isn't possible by utilizing different procedures ^[81-83].

This anesthesia is utilized for patients who want to be a rest amid surgery. General anesthesia is directed intravenously or breathed in through a breathing veil to impel anesthesia by rendering patient totally oblivious ^[84-88].

Patient needs help breathing once the anesthesia has produced results consequently a few gadgets are utilized to give breathing backing to the patient like endotracheal tube ^[89-95]. Endotracheal tube is since a long time ago advanced plastic tube put in the patient's mouth and is tenderly degree into windpipe ^[96-98].

For satisfying the need of help breath endotracheal tube is one of the most secure and most solid means ^[99-100].

CONCLUSION

In current surgery and therapeutic strategies anesthesia is turned out to be a help to perform easy and oblivious operations. Research on anesthesia for safe pertinent and powerful results with negligible reactions has given an alleviation and certainty to both patients and medicinal specialists to give a best restorative consideration. In exceptionally uncommon cases, anesthesia can bring about entanglements, else it is safe. Get clear your questions by addressing your specialist or anesthesiologist about any concerns.

REFERENCES

1. Giladi Y and Ioscovich A. Hypothermia Following Intra-Thecal Morphine Injection during Cesarean Section: a Case Report and Literature Review. *J Anesth Clin Res.* 2015;6:527.
2. Reich H et al. Hemodynamic Consequences of Laparoscopy for Patients on Mechanical Circulatory Support. *J Anesth Clin Res.* 2015;6:526.
3. Saito K et al. Anticoagulant Managements of Left Ventricular Assist Device Implantation in Two Patients with Heparin-Induced Thrombocytopenia (HIT): Use of Argatroban as an Anticoagulant for Cardiopulmonary Bypass. *J Anesth Clin Res.* 2015; 6:525.
4. Devine S et al. Intra-operative Communication Regarding Neuromuscular Blockade: A Survey of Anaesthesiologists and Surgeons. *J Anesth Clin Res.* 2015;6:524.
5. Martínez LC et al. Pulsed Radiofrequency on Terminal Branches of the Pudendal Nerve: Preliminary Results. *J Anesth Clin Res.* 2015;6:523.
6. Ersoy O and Tasargol O. Skin Necrosis in an ICU-Patient due to Accidental Extravasation of Parenteral Nutrition Solution via a Peripheral Intravenous Catheter - A Case Report. *J Anesth Clin Res.* 2015;6:522
7. Zielinska-Borkowska U et al. Multiple Organ Failure as a Result of Extensive Physical Exertion - Case Report. *J Anesth Clin Res.* 2015;6:521.
8. Mandim BLS. Review of Anesthesia for Non-Obstetrical Surgery during Pregnancy. *J Community Med Health Educ.* 2015;5:346.
9. Sanfilippo F et al. An Unusual Case of Intoxication: High Blood Alcohol Levels without Alcohol Ingestion. *J Anesth Clin Res.* 2015;6:520.
10. Martinelli O et al. Radioguided Surgical Resection of Carotid Body Tumors. *J Anesth Clin Res.* 2015;6:519.
11. Nabatame M et al. Profound Hypotension during Kidney Transplantation for a Patient with a Depressive Disorder. *J Anesth Clin Res.* 2015;6:518.
12. Gauhar A et al. Pain Relief via Education: First Step towards Improving Pain Management in Developing Countries. *J Anesth Clin Res.* 2015; 6:517.
13. Rasheed R. Radio-Synthesis, and In-vivo Skeletal Localization of ¹⁷⁷Lu- zoledronic Acid as Novel Bone Seeking Therapeutic Radiopharmaceutical. *J Anesth Clin Res.* 2015;6:516
14. Ibrahim Ahmed A. Ketofol for Procedural Sedation and Analgesia in Children with Acute Lymphoblastic Leukemia. *J Anesth Clin Res.* 2015;6:515.
15. Belihun A et al. A Prospective Study on Surgical Inpatient Satisfaction with Perioperative Anaesthetic Service in Jimma University Specialized Hospital, Jimma, South West Ethiopia. *J Anesth Clin Res.* 2015;6:514.
16. Minami T et al. Safety and Effectiveness of Propofol Sedation during Endoscopic Retrograde Cholangiopancreatography. *J Anesth Clin Res.* 2015;6:513.
17. Abd-Elshafy SK et al. Caudal Neostigmine and Bupivacaine Facilitates Early Extubation and Provides Prolonged Postoperative Analgesia in Children Undergoing Open Heart Surgery. *J Anesth Clin Res.* 2015;6:512.
18. Perdomo JM et al. Use of Venovenous Extracorporeal Membrane Oxygenation to Anticipate Difficult One Lung Ventilation in Thoracic surgery. *J Anesth Clin Res.* 2015;6:505.
19. Salim B et al. Effectiveness of Midazolam in the Prevention of Etomidate Induced Myoclonus. *J Anesth Clin Res.* 2015;6:503.
20. Abdullah WA et al. Articaine (4%) Buccal Infiltration versus Lidocaine (2%) Inferior Alveolar Nerve Block for Mandibular Teeth Extraction in Patients on Warfarin Treatment. *J Anesth Clin Res.* 2014;5:434.

21. Lalenoh DC et al. Brain Protection Effect of Lidocaine Measured By Interleukin-6 and Phospholipase A2 Concentration in Epidural Haematoma with Moderate Head Injury Patient. *J Anesth Clin Res.* 2014;5:388.
22. . Abdelwahab NS et al. Determination of Thiomersal, Lidocaine and Phenylephrine in their Ternary Mixture. *J Chromatograph Separat Techniq.* 2014;4:199.
23. . Dhadwal N et al. Tolerability and Efficacy of Long-Term Lidocaine Trigger Point Injections in Patients with Chronic Myofascial Pain. *Int J Phys Med Rehabil.* 2013;S1: 004.
24. Hwangbo JW et al. Successful Finding of Local Anesthetics for a Girl with Local Lidocaine Anaphylaxis. *Pediat Therapeut.* 2013;3:143.
25. Imaizumi U et al. Effects of Lidocaine on Ischemia/Reperfusion Injury in In vivo Rabbit Hearts. *J Anesth Clin Res.* 2012;3:261.
26. Manaa E . Local Anesthetic Irrigation and Postoperative Pain in Patients Undergoing Breast Augmentation. *J Anesth Clin Res.* 2011;2:151.
27. Van Noord BA et al. Opioid Resistant Pain Successfully Managed with Magnesium, Lidocaine and Ketorolac in the Post-Anesthesia Care Unit: A Case Series. *J Anesth Clin Res.* 2011;3:196.
28. Vandse R, et al. Randomized Double Blind Control Study Comparing the Efficacy of Intracuff Alkalinized Lidocaine to Low Dose Remifentanyl Infusion in Attenuating the Endotracheal Tube Induced Emergence Phenomena. *J Anesth Clin Res.* 2014;5:435.
29. Erkalp K et al. Accidental Hand Injury with Scalpel in the Operating Room: Do the Differences Between Desflurane with Sevoflurane Vaporizers have a Preventive Effect? *J Anesth Clin Res.* 2011;2:143
30. Keles GT et al. Balanced Anesthesia with Dexmedetomidine added Desflurane or Sevoflurane in Spinal Surgery. *J Anesth Clin Res.* 2012;3:216.
31. Yassen K et al. Effect of Target-Controlled Infusion of Propofol-Fentanyl versus Desflurane in Cirrhotic Patients Undergoing Major Hepatic Resection with Transoesophageal Doppler Monitoring A Randomized Control Study. *J Anesth Clin Res.* 2014;5: 485.
32. Goma HM et al. Three Dimensional Transabdominal Power Doppler Ultrasonographic Imaging of Trophoblastic Blood Flow as a Prognostic Parameter in the First Trimester after Isoflurane Fentanyl, versus Spinal Anesthesia. *J Women's Health Care.* 2014;3:154.
33. Lowalekar SK et al. The Progression of Isoflurane-induced Malignant Hyperthermia and Its Attenuation by Cisatracurium in a Pre-clinical Porcine Model of Heart Transplant. *J Anesth Clin Res.* 2013;4:365.
34. Schober ME et al. Isoflurane Exposure did not Adversely Affect Recognition Memory or Decrease Hippocampal Brain Derived Neurotrophic Factor Expression in the 17 Day Old Rat Pup. *J Anesth Clin Res.* 2013;4:362.
35. Hashida SN et al. Influence of Nitrogen Limitation and Long-Term Use of Rockwool on Nitrous Oxide Emissions in Hydroponic Systems. *J Horticulture.* 2014 1: 113.
36. Nakao K et al. Comparison of Cuff Pressure Increase upon Nitrous Oxide Exposure in air-Q® Single Use, LMA-Supreme®, and LMA-ProSeal®; a Simulation Study. *J Anesth Clin Res.* 2014;5:451.
37. Boriosi J. Sedation with Nitrous Oxide or "Laughing Gas". *Pediat Therapeut.* 2014;4:i101
38. Genthner FJ et al. Estimating Rates of Denitrification Enzyme Activity in Wetland Soils with Direct Simultaneous Quantification of Nitrogen and Nitrous Oxide by Membrane Inlet Mass Spectrometry. *J Microb Biochem Technol.* 2013;5: 095-101..
39. Schmitz G et al. Use of Nitrous Oxide in the Emergency Department: A Review of the Literature. *Emergency Med.* 2013;3:e131
40. Dube SK et al. Propofol Requirement during Propofol and Butorphanol Anesthesia with and without Nitrous Oxide in Short Duration Intracranial Surgeries: A Bispectral Index Guided Study. *J Anesth Clin Res.* 2013;3:238

41. Jakimska A et al. Environmental Fate of Two Psychiatric Drugs, Diazepam and Sertraline: Phototransformation and Investigation of their Photoproducts in Natural Waters. *J Chromatogr Sep Tech.* 2014;5: 253
42. Gupta V et al. Development of Economic Herbal Based Drug Substitute from Citrus paradisi (Grape fruit) for Existing Anti-anxiety Drug Modules. *Nat Prod Chem Res.* 2014;S1:001.
43. Backmund M et al. A Randomized Double-Blind Placebo Controlled Study of Methadone and Diazepam with or without Carbamazepine for Combined Opioid and Benzodiazepine Detoxification. *J Clin Toxicol.* 2012;2:133.
44. Bentley WE et al. Ketamine: An Update for Its Use in Complex Regional Pain Syndrome and Major Depressive Disorder. *Clin Exp Pharmacol.* 2015;5:169.
45. Bredlau AL et al. Neurocognitive Changes after Sustained Ketamine Administration in Children with Chronic Pain. *J Palliat Care Med.* 2015;5:215.
46. Olalekan O and Sanya OJ. NMDA R/VDR in Fish Melanocytes; Receptor Targeted Therapeutic Model and Mechanism in Parkinson's disease. *J Biomol Res Ther.* 2014;3:114.
47. EL-Shmaa NS and El-Baradei GF. The Efficacy of Etomidate-Fentanyl versus Dexmedetomidine-Ketamine for Procedural Sedation and Analgesia during Upper Endoscopy and Biopsy: A Prospective, Randomized Study. *J Anesth Clin Res.* 2014;5:480.
48. Lauretti GR et al. Transdermal Ketamine and S(+)-Ketamine as Adjuvants Following Orthopaedic Surgery under Bupivacaine Spinal Anaesthesia. *J Phys Chem Biophys.* 2014; 4:154.
49. Neri CM et al. Low-dose Ketamine for Children and Adolescents with Acute Sickle Cell Disease Related Pain: A Single Center Experience. *J Anesth Clin Res.* 2014;5: 394.
50. Butt MN and Ahmed A. The Induction Dose of Propofol with Ketamine- Propofol and Midazolam-Propofol Co-Induction. *J Anesth Clin Res.* 2013;4:371.
51. Neri CM et al. Low-dose Ketamine for Children and Adolescents with Acute Sickle Cell Disease Related Pain: A Single Center Experience. *J Anesth Clin Res.* 2013;5:394.
52. Butt MN and Ahmed A. The Induction Dose of Propofol with Ketamine- Propofol and Midazolam-Propofol Co-Induction. *J Anesth Clin Res.* 2013;4:371.
53. Badr Naga BSH and Thaher MM. Ketamine Effectiveness in Cancer Pain Management: Evidence-based Practice. *J Pain Relief.* 2013;2:117..
54. Al-maksoud Yousef AA and Mostafa WA. The Efficacy of Preemptive Ketamine Administration in Bilateral Superficial Cervical Plexus Block After Thyroid Surgery. *J Anesth Clin Res.* 2013;4:316.
55. Ayrapetyan S et al. Cell Dehydration as a Mechanism of Ketamine Analgesic and Anesthetic Effects. *J Bioequiv Availab.* 2013;5:136-141.
56. Schwartzman RJ and et al. Ketamine as Adjunctive Anesthesia in Refractory Complex Regional Pain Syndrome Patients: A Case Series. *J Clin Case Rep.* 2012;2:186.
57. EROL DD and KAYA C. Evaluation of Intubating Dose of Rocuronium and Propofol-Ketamine Association for Rapid Sequence Induction of General Anaesthesia for Caesarean Section in Extremely Urgent Settings. *Gynecol Obstetric.* 2011;2:110.
58. Ebong EJ et al. Pre-Incisional Intravenous Low-Dose Ketamine Does Not Cause Pre-Emptive Analgesic Effect Following Caesarean Section under Spinal Anaesthesia. *J Anesth Clin Res.* 2011;2:138.
59. Mendes FF et al. Analgesia with Low-Dose S(+)- ketamine in Laparoscopic Cholecystectomy: A Randomized, Double-Blind, Placebo-Controlled Clinical Trial. *J Anesth Clin Res.* 2011;2:133.
60. Minami T et al. Safety and Effectiveness of Propofol Sedation during Endoscopic Retrograde Cholangiopancreatography. *J Anesth Clin Res.* 2015;6:513.
61. Furutani E et al. Comparison of Pharmacokinetic Models for Hypnosis Control Based on Effect-Site Propofol Concentration to Maintain Appropriate Hypnosis. *Automat Control Physiol State Func.* 201; 2 104.

62. Yassen K et al. Effect of Target-Controlled Infusion of Propofol-Fentanyl versus Desflurane in Cirrhotic Patients Undergoing Major Hepatic Resection with Transoesophageal Doppler Monitoring: A Randomized Control Study. *J Anesth Clin Res.* 2014;5:485.
63. Choi JJ et al. Monitored Anesthesia Care Using Target-Controlled Infusion with Propofol and Remifentanyl in a Patient with Subglottic Stenosis. *J Anesth Clin Res.* 2014;5:443.
64. Ong YY et al. Cloudy Urine after Propofol Anesthesia; A Rare Occurrence after a Routine Anesthetic. *J Anesth Clin Res.* 2014;5:432.
65. Garewal D. Propofol Sedation for Patients Undergoing Gastrointestinal Endoscopy Procedures: Challenging Existing Paradigms in Healthcare. *J Gastroint Dig Syst.* 2014; 4:196.
66. Campos S et al. Simultaneous Quantification of Propofol and its Non-Conjugated Metabolites in Several Biological Matrices Using Gas Chromatography/ Ion Trap – Mass Spectrometry Method. *J Anal Bioanal Tech.* 2014;5:195.
67. Tams C and Johnson K. Prediction Variability of Combined Pharmacokinetic Pharmacodynamic Models: A Simulation Study of Propofol in Combination with Remifentanyl and Fentanyl. *J Anesth Clin Res.* 2014;5:393.
68. Feng YN et al. Hippocampal Neuron Protecting Effect of Propofol Against Hypoxia/Reoxygenation via Inducing Nerve Growth Factor. *Transl Med.* 2014; 4:123.
69. Plaschke K et al. Surgery under Propofol Anesthesia Induced Behavioral Changes Associated With Increased Cerebral Apoptosis in Rats. *J Liver.* 2013;2:136.
70. Butt MN and Ahmed A. The Induction Dose of Propofol with Ketamine- Propofol and Midazolam-Propofol Co-Induction. *J Anesth Clin Res.* 2013;4:371.
71. Salim B et al. Effectiveness of Midazolam in the Prevention of Etomidate Induced Myoclonus. *J Anesth Clin Res.* 2015;6:503.
72. EL-Shmaa NS and El-Baradei GF. The Efficacy of Etomidate-Fentanyl versus Dexmedetomidine-Ketamine for Procedural Sedation and Analgesia during Upper Endoscopy and Biopsy: A Prospective, Randomized Study. *J Anesth Clin Res.* 2014;5:480.
73. Chern SYS et al. Perioperative Pain Management for Patients on Chronic Buprenorphine: A Case Report. *J Anesth Clin Res.* 2012;3:250.
74. Soyka M. Buprenorphine Use and Risk of Abuse and Diversion. *Adv Pharmacoepidemiol Drug Saf.* 2014;3:145.
75. Ishak M et al. Will the Body Temperature be Affected by Lowering Intrathecal Morphine Dose from 100 to 50 Micrograms? *J Anesth Clin Res.* 2013;4:327.
76. Beyaz SG and Eman A. Comparison of Caudal Levobupivacaine versus Levobupivacaine plus Morphine Mixture for Postoperative Pain Management in Children. *J Anesth Clin Res.* 2012;4:278.
77. Allan J et al. Illicit Fentanyl use in Rural Australia – An Exploratory Study. *J Alcohol Drug Depend.* 2015;3:196.
78. Singh TK et al. Unilateral Spinal Anaesthesia for Lower Limb Orthopaedic Surgery Using Low Dose Bupivacaine with Fentanyl or Clonidine: A Randomised Control Study. *J Anesth Clin Res.* 2014;5:484.
79. Choi JJ et al. Monitored Anesthesia Care Using Target-Controlled Infusion with Propofol and Remifentanyl in a Patient with Subglottic Stenosis. *J Anesth Clin Res.* 2014;5:443.
80. Karvandian K. Comparison of the Effects of Infusion of Propofol -Remifentanyl with Midazolam-Remifentanyl in Reducing Bleeding in Patients undergoing Middle Ear Surgery. *J Anesth Clin Res.* 2012;3:201.
81. Yu B, Wang X, Helbo-Hansen HS, Huang WQ, Askeland B, et al. (2014) Sugammadex 4.0 mg kg⁻¹ Reversal of Deep Rocuronium-Induced Neuromuscular Blockade: A Multicenter Study in Chinese and Caucasian Patients. *J Anesth Clin Res* 5: 408.

82. Lowalekar SK, Cao H, Lu XG, Treanor PR, Allam CK, et al. (2013) The Progression of Isoflurane-induced Malignant Hyperthermia and Its Attenuation by Cisatracurium in a Pre-clinical Porcine Model of Heart Transplant. *J Anesth Clin Res* 4: 365.
83. Ndorbor T, Wang Y, Huajing D, Zhizhang D, Kolawole JA, et al. (2013) Chromatographic and Molecular Simulation Study on the Chiral Recognition of Atracurium Besylate Positional Isomers on Cellulose Tri- 3, 5-Dimethylphenylcarbamate (CDMPC) Column and its Recognition Mechanism. *J Chromat Separation Techniq* 4: 176.
84. El-Orbany M, Joseph NJ, Salem MR (2011) Post-Tetanic Count Recovery after Cisatracurium in Elderly Patients. *J Anesthe Clinic Res* 2:119.
85. Ndorbor T et al. Chromatographic and Molecular Simulation Study on the Chiral Recognition of Atracurium Besylate Positional Isomers on Cellulose Tri- 3, 5-Dimethylphenylcarbamate (CDMPC) Column and its Recognition Mechanism. *J Chromat Separation Techniq*.2013;4:176.
86. Singh TK, et al. Unilateral Spinal Anaesthesia for Lower Limb Orthopaedic Surgery Using Low Dose Bupivacaine with Fentanyl or Clonidine: A Randomised Control Study. *J Anesth Clin Res*. 2014;5:484.
87. Ataro G and Bernard M. Effectiveness of Caudal Epidural Block using Bupivacaine with Neostgmine for Pediatric Lower Extremity Orthopedic Surgery in Cure Ethiopia Children's Hospital. *J Anesth Clin*.(2014);Res 5:479.
88. .Obi AO. Low Dose Spinal Saddle Block Anesthesia (With 1.5 Mg Bupivacaine) For Transrectal Prostate Biopsy-Experience with 120 Cases. *J Anesth Clin Res*.2014;5:469
89. Karaca F, et al. Assessment of the Effect of Intrathecal Low Dose Levobupivacaine or Bupivacaine Combined with Fentanyl in Patients Undergoing Cesarean Section. *J Anesth*.(2014);*Clin Res*5:465.
90. Hadley RM and Dine AP. Where is the Evidence? A Critical Review of Bias in the Reporting of Clinical Data for Exparel: A Liposomal Bupivacaine Formulation. *J Clin Res*.(2014);*Bioeth*5:189.
91. Lauretti GR et al. Transdermal Ketamine and S(+)-Ketamine as Adjuvants Following Orthopaedic Surgery under Bupivacaine Spinal Anaesthesia. *J Phys Chem Biophys*.(2014);4:154.
92. Khatun S et al. A Clinical Study of Trigeminal Neuralgia with Incredible Pain, Satisfaction with Quality Pain Management. *J Pain Relief*.2013; S3:002.
93. Harjai M. et al. Optimization of Bupivacaine Induced Subarachnoid Block by Clonidine: Effect of Different Doses of Oral Clonidine. *J Anesth Clin*.2013;Res5:382.
94. Karnawat R. et al. Comparison of Effect of Epidural Bupivacaine, Epidural Bupivacaine Plus Fentanyl and Epidural Bupivacaine Plus Clonidine on Postoperative Analgesia after Hip Surgery. *J Anesth Clin Res*.2013;4:373.
95. Annamalai A. Can Intravenous Dexmedetomidine Prolong Bupivacaine Intrathecal Spinal Anesthesia? *J Anesth Clin Res*;4:372.
96. Beyaz SG and Eman A. Comparison of Caudal Levobupivacaine versus Levobupivacaine plus Morphine Mixture for Postoperative Pain Management in Children. *J Anesthe Clinic Res*.2012;4:278.
97. Mansour NA et al. Ropivacaine versus Bupivacaine in Postoperative Pain Control. *J Biotechnol Biomater*.2012;2:137.
98. Manaa E. Local Anesthetic Irrigation and Postoperative Pain in Patients Undergoing Breast Augmentation. *J Anesthe Clinic*.2011;Res2:151
99. Tomar GS et al. A Comparative Study of Two Different Doses of Fentanyl Added to Bupivacaine for Intermittent Epidural Labor Analgesia: A Prospective Randomized Double Blind Study. *J Anesthe Clinic Res*.2011;2:145.
100. Dabbagh A, The Effect of Intrathecal Bupivacaine Plus Sufentanil on Intraoperative Hemodynamics During Elective Coronary Artery Bypass Surgery. *J Anesthe Clinic Res*.2011;2:139.