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Research Paper

Dexmeditomidine Versus Propofol When Used For Patients Undergoing Elective Surgery Under Regional Anaesthesia

Medical Science

KEYWORDS : Dexmeditomidine , Propofol , Intraoperative sedation , Regional Anaesthesia

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ABSTRACT

We compared the time of onset and offset of sedation using Dexmeditomidine and propofol also postoperative analgesia.Fifty patients scheduled for elective surgery under regional anaesthesia were randomly selected for this study to receive either Dexmeditomidine(1 µgm/ kg) intial loading dose for 10 min; maintenance 0.4-0.7 µgm /kg/h or propofol 75 µg/ kg /min for 10 min followed by 12.5-75 µg/ kg /min. Hemodynamic variables (heart rate and mean arterial pressure), sedation (Observer assessment of sedation /Alertness), respiratory rate , oxygen saturation and pain (Visual Analogue Scale) were determined during surgery and 90 min postoperatively.sedation achieved with propofol was more rapid and caused decrease in MAP more than dexmeditomidine . dexmeditomidine resulted in more sedation and improved postoperative analgesia with no effect on respiratory rate.

Introduction:
Dexmeditomidine is Alpha2 receptor agonist has potent sedative properties hence used ICU[2,4]. In additiation it has analgesia sparing properties along with sedation it is useful in OR sedation.Since it decreases sympathetic outflow its autonomic effects are unknown The purpose of this study is to evaluate hemodynamic changes , sedation achieved at equisedative doses of Dexmeditomidine and Propofol in OR. Time of onset and offset , post operative analgesia requirement were also compared.

Subjects and Methods:
50 patients between age group 18-60 yrs were randomly selected posted for elective surgery using regional anaesthesia, belonging to ASA I- III. All patient scheduled for elective procedure must have 24 hrs postoperative stay at hospital. Inclusion criteria include normal renal function test of patient and no use of narcotics. Exclusion criteria include heart block, ejection fraction less than 30%, history of sleep apnea, psychomotor disease,or use of other alpha 2 agonist.

Each patient scheduled for elective procedure under regional anaesthesia either Spinal, Epidural, peripheral nerve block. All Patients were instructed about VAS and Observer assessment of alertness / sedation Scale for assessment of sedation achieved. After providing regional , nasal canula was applied , O_2 was given at 2l /min.Hemodynamic monitoring done at every 5 min. Patient were randomised to receive either Dexmeditomidine (loading dose 1µgm for 10 min followed by maintenance 0.4-0.7 µgm /kg/h or propofol 75 µg/ kg /min for 10 min followed by 12.5-75 µg/ kg /min.until sedation was achieved on OAA < 3 assessed every till discontinuation of infusion.

In Postoperative period VAS score was assessed every 5 min till 15 min thereafter every 10 min till 90 min. Postoperative pain was treated with i.v injection diclofenac. 24 hr follow up was made to assess patient satisfaction with sedation for surgical procedure.

Results:
There were no significant difference between the groups in demographics of patient data (avg age 45 yrs , height- 160 cm , weight- 60 kg ,M:F ratio-27:23). Preoperative hemodynamic variables (HR-80/min , MAP-100mmhg, RR- 14/min , SPO_2-98%).

During intraoperative period , there was significant difference in time required to achieve targeted sedation (OAA<3) 15 min for propofol and 30 min Dexmeditomidine. O_2 saturation was similar in both groups but MAP was significantly reduced in propofol group than in Dexmeditomidine group during intraoperative period.

During postoperative recovery Dexmeditomidine less top up analgesicand had higher sedation scores as compared to propofol group.MAP was significantly lower in Dexmeditomidine group as compared to propofol group

Discussion:
As compared to Propofol Dexmeditomidine provide slower onset and longer duration of sedation. We noted less decrease in MAP in intraoperative period , while greater decrease in MAP in Postoperative period. Dexmeditomidine has lower pain scores and higher sedation scores in postoperative recovery phase[2].

The patients were randomised to treatment groups and type of surgical procedure. Patient receiving propofol achieved sedation more rapidly than Dexmeditomidine with significantly decreased MAP .

Dexmeditomidine is known to cause decrease in sympathetic outflow and circulating catecholamines , but larger doses have direct effect on postsynaptic vascular smooth muscle to cause vasoconstriction and its possible sympathetic inhibitory effect. In the present study, there was no significant respiratory depression either with propofol or Dexmeditomidine infusion.

Patient who had received Dexmeditomidine for sedation had significantly reduced analgesic needs postoperatively. Half life of Dexmeditomidine is 2 hrs hence analgesic sparing properties persist in recovery period. However patient are easily arousable in recovery period than propofol[3]. Decrease in MAP in postoperative period is due to residual level of Dexmeditomidine too small to cause significant postsynaptic alpha receptor mediated vasoconstriction[1,5].

To summarise Dexmeditomidine have slower onset and offset time of sedation with no sign influence on Respiratory rate , higher MAP in Intraoperative period than propofol . In recovery period Dexmeditomidine was associated wiyh analgesia sparing properties, slightly increased sedation but no respitory compromise[1].

REFERENCE

1. Kaygusuz K, Gokce G, Gursoy S, Ayan S, Mimaroglu C, Gultekin Y. A comparison of sedation with dexmedetomidine or propofol during shock-wave lithotripsy: A randomized controlled trial. Anesth Analg 2008;106:114-19. | 2. Techanivate A , Verawattaganon T, Saiyuenyong C, Areeruk P . A Comparison of Dexmedetomidine versus Propofol on Hypotension during Colonoscopy under Sedation. J Anesth Clin Res 2012;3:25 | 3. Khan ZP, Ferguson CN, Jones RM. Alpha-2 and imidazoline receptor agonists: their pharmacology and therapeutic role. Anesthesia 1999;54:146-65. | 4. Elbert T., Hall J, BarneyJ. The effects of increasing plasma concentration of | Dexmeditomidine in humans . Anaesthesiology 2000;93:382-94 | 5. Talke P, Chen R, Thomas B, Aggarwall A, Gottlieb A, Thorborg P. The | hemodynamic and adrenergic effects of perioperative dexmedetomidine infusion | after vascular surgery. Anesth Analg 2000;90:834-9. |