ORIGINAL RESEARCH

A comparative study between iv fentanyl and midazolam for placing central venous canulation in critically ill patients

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ABSTRACT
Dexmedetomidine has side effects of bradycardia so we are planning to do randomized pr0spectivedouble blind trial to evaluate the effect of addition of fentanyl and midazolam ivwhile placing CVCin the criticalill patients. The study groups divided in 2 groups. One groups obtained 25mg of fentanly 10 min beforeprocedure.Other groupobtained 1 mg of midazolam 10 min before procedure. Patient positioned supine with trendelenberg position 10- 15 degree neck extended to opposite sidetowel placed between scapula to extended head. IJV cannulation done with7 frenchtriple lumen catheter byanterior approach using ultrasound method. 2ml of la is injected with 25g needle at the apex of triangle formed by lateral and medial head of sternocleidomastoid 1ml each injected on either side of vein for anchoring stitches by repositioning the needle. The median pain, discomfort sedation score in fentanyl and midazolam group is shown.The fentanyl appeared to be more analgesically efficient in reducing the pain intensity after la injection.The procedure related discomfort was significantly reduced in midazolam group.in our study fentanyl is more analgesically efficient compared to midazolam group.

Key words: Fentanyl, midazolam, central venous canulation

INTRODUCTION

CVC Is frequently performed procedure in the ICU it is associated with pain, anxiety and discomfort. Pain in unpleasant emotion and sensory experience from tissue damage. It isthe duty of anaesthetist to remove the unpleasant feeling by providing adequate analgesia and sedation. Conscious patients has to undergo pain and discomfort of the procedure,trendelenberg position.

Withextended head and flexed neck cause discomfort. While injecting local first needle prick given maximumpain. Subsequent procedure like anchoring the CVC to skin also give pain. There are studies available comparing the potential of dexmedetomidine and fentanyl.

Dexmedetomidine has side effects of bradycardia so we are planning to do randomized pr0spectivedouble blind trial to evaluate the effect of addition of fentanyl and midazolam ivwhile placing CVC in the criticalill patients.

Studies are there where short acting opioids combination with other agents like propofol and midazolam and effective in ensuring adequatepain and discomfort relief while placing CVC line.

AIMS AND OBEJECTIVE

To Study And Compare EffectiveOf AdditionOf Fentanyl (25mg) With Midazolam (1mg) To ConventionalLaInjection During CVCIn ICU Patients.

MATERIALS AND METHODLOGY

Study was started after getting approval from ethical committee clearance.60 adults patients of ASA iii and iv in the ICU were included in the study

The study was randomized double blinded prospective study

INCLUSION CRITERIA
- ASA iii and iv patients
- ICU patients
- Conscious oriented patients
- No analgesic / sedatives given 4hrs before procedure.

EXCLUSION CRITERIA
- Patients with haematological disorders
- Intubated unconscious patients
- Patient on muscle relaxants and analgesic drugs medication for controllingBP

Study design: Prospective comparative study
Study period: 18 months
- The study groups divided in 2 groups
- One groups obtained 25mg of fentanly 10 min beforeprocedure
- Other groupobtained 1 mg of midazolam 10 min before procedure
- Patient positioned supine with trendelenberg position 10- 15 degree neck extended to opposite side towel placed between scapula to extended head.
- IJV cannulation done with7 frenchtriple lumen catheter byanterior approach using ultrasound method.
- 2ml of la is injected with 25g needle at the apex of triangle formed by lateral and medial head of sternocleidomastoid 1ml each injected on either side of vein for anchoring stitches by repositioning the needle

VERBAL NUMERICAL RATINGS SCALE
- Mild pain -1-3
- Moderate pain -3-5
- Severe pain-5-7
- very severe pain-7-9
- Worst pain-9-10

VISUAL VECTOR CHART
- 0-no pain
- 1 -5-moderate pain
- 5 -10-worst pain

PAIN SCALE CHART VERTICAL
- No pain-0
- Discomfort -1-2
- Distressing -2-4
- Intense-4-6
- Horrible-6-8
- Unimaginable-8-10

RASSSEDATION ASSESSMENT
Richmond agitation sedation scale (rass)
score of pain, discomfort,sedation was recorded a
1) Bl-before starting, during injection
2) After initial la injection lai
3) Immediately after CVCi
4) 10 min after completion of procedure
5) 30 Min after completion of procedure

PAIN ASSESSED USING PAIN SCALE CHART VERTICAL
- Sedation is asessed using richmond agitation sedation scale.-monitoring of hr,bp, spo2 is done.
- Spo2<92%, rr-<18 b/m treated with oral stimulation, guedels airway, head tilt chin lift
- In severe cases bag mask ventilation.
- Hypotension <30 of baseline treated with iv fluids 100ml bolus and iv mephentramine.
- Hr<50 was treated with iv atropine 0.6mg.
- Hypertension treated sbp>20 withanalgesic dose of fentanyl (25mg).
- Tachycardiapersisting for long time >30% abovebaseline is treated with additionalsedation of 0.5mg of midazolam.

RESULTS AND DISCUSSION
- Pain is unpleasant sensory & emotional experience that arrives from potential tissue damage associated with CVC.
- Central venous catheterization is commonly performed invasive procedure in intensive care unit.
- LA is used for pain reduction in conscious patients.
- Sensory and emotional components of pain was associated with CVC.
- IV fentanyl(25Mg) can significantly reduce the pain during first prick, during la injection and securing the CVC line.
- Midazolam group had pain during la injection, but was comfortable.
- Morrisonetal in five point numerical seating scale described central venous cannulation as severely uncomfortable procedure and moderately painful.
- Joshietal used bolus sufentanyl.
- Sufentanyl was used 10 mins before chest tube removal and it demonstrated a low pain intensity.
- There was no significance difference among the patient group in terms of patient demographic baseline respirations, cardiovascular parameters and number of attempts.
- The median pain, discomfort sedation score in fentanyl and midazolam group is shown.
- The fentanyl appeared to be more analgesically efficient in reducing the pain intensity after la injection.
- The procedure related discomfort was significantly reduced in midazolam group.
- In our study fentanyl is more analgesically efficient compared to midazolam group.
- In our study no patient had episode OD desaturation, bradycardia, hypertension, hypotension,respiratory depression.

- Both fentanyl and midazolam provided comparable analgesia for central venous cannulation along with la field.
- Fentanyl is good analgesia.
- Midazolam group had good patient tolerance and less discomfort.

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