BIBLIOGRAPHY


In the era of mononarcosis all principal requirements of an ideal anaesthetic state i.e. analgesia, narcosis, myorelaxation and neurovegetative stability were provided by means of inhalation or intravenous anaesthetic drugs. Obtaining these several effects by means of a single volatile or injectable drug could only be possible at the risk of immediate or secondary central and peripheral toxic effects. To avoid these toxic phenomenon and to ensure the evaluation and control of each of the element in surgical anaesthesia the concept of potentialized anaesthesia was brought into light first by combining the curare with injectable barbiturates (Laborit, 1950 and Huguenard, 1950).

The term Neuroleptanalgesia was first proposed by De-Castro and Mundeleer (1959) to describe a state of indifference and immobilization termed mineralization and produced by combined administration of neuroleptic drug Haloperidol and Phenoperidine, described as NLA formula-1. Later on Janssen P.A.J. (1962) replaced Haloperidol and Phenoperidine with Droperidol and Fentanyl and described it as NLA-formula-II.

Originally neuroleptanalgesia was said to be characterized by deep sedation and analgesia without loss of consciousness. The term Neuroleptanaesthesia was proposed by Foldes et al (1966) to characterize
the unconscious state of the patient who received oxygen and nitrous oxide in addition to Droperidol and Fentanyl.

Kay and coworkers (1970) recommended Pentazocine, a non-addictive analgesic as a suitable alternative for Phenoperidine in combination with Droperidol in neuroleptanalgesia for neuroradiological procedures because of its fewer cardiovascular changes and less respiratory depression.

In spite of high potency and wide safety margin because of high therapeutic index, this technique has disadvantages of marked respiratory depression and ventilatory difficulty.

In the present study the technique of neuroleptanalgesia was applied on patients undergoing major operations to evaluate the respiratory problems and depression associated with Fentanyl and cardiovascular changes due to Droperidol. The patients were premedicated with Atropine 0.3-0.65 mg, Droperidol 2.5 mg and Fentanyl 0.05 mg/Pentazocine 30 mg, 45 minutes before surgery and then the anaesthesia was induced with Droperidol 0.15-0.18 mg kg⁻¹ of body weight and Fentanyl 0.003-0.004 mg kg⁻¹ or Pentazocine 1.2-1.4 mg kg⁻¹ with maximal utilization of nitrous oxide and oxygen. As patient became unconscious succinylcholine was given to facilitate intubation. Additional doses of
analgesic and muscle relaxants were given as and when needed. When ever possible assisted rather than controlled ventilation was used. Inadequate spontaneous respiration at the termination of anaesthesia was reversed with Nalorphine or Doxapram.

The observations viz. pulse rate and rhythm, systolic and diastolic blood pressures, respiratory frequency, tidal volume and minute volume, were measured and recorded before premedications, just before induction to serve as a control, after Droperidol, after analgesic agents, during maintenance at frequent intervals, at the end of anaesthesia and after Nalorphine or Doxapram if given.

After analysing the observations made on 116 patients belonging to age group of 12-65 years of both sexes (61.2% male and 38.8% female) undergoing major operations anaesthetized with classic and modified method of neuroleptanaesthesia, following conclusions were drawn:

1. Neuroleptanaesthesia is a safe technique in patients of all age group undergoing major surgery.

2. Induction is smooth although induction time is more than the other conventional intravenous anaesthetic techniques.

3. Fentanyl though a potent analgesic has got a shorter duration of action than Pentazocine
therefore frequent repeated doses of Fentanyl has to be given for surgery of longer duration not so with Pentazocine.

4. A relatively higher doses are probably required in alcoholics and patient indulged in other intoxicants for the production of smooth induction.

5. Cardiovascular stability is well maintained during surgery particularly after induction has been completed with Droperidol and Fentanyl as well as with Droperidol and Pentazocine.

6. Droperidol produces an insignificant, rise in pulse rate and fall in systolic and diastolic blood pressure.

7. Fentanyl produces an insignificant rise, in pulse rate, and systolic blood pressure, but minimal fall in diastolic blood pressure.

8. Patients with hypotensive episode during surgery due to excessive blood loss showed good peripheral perfusion due to alpha-adrenergic effect of Droperidol thereby delaying irreversibility of shock.

9. Pentazocine helps in counteracting rise in pulse rate caused by Droperidol. It also elevates the systolic and diastolic blood pressure though insignificantly.
10. Electrocardiographic tracing shows normal sinus rhythm even in cases where local adrenaline infiltration is used to obtain hemostasis.

11. Droperidol has got insignificant depressive effect on respiration.

12. Both Fentanyl and Pentazocine produces a highly significant fall in respiratory frequency, tidal volume and minute volume, though it is less marked but persist longer with Pentazocine than with Fentanyl.

13. Respiratory depression due to Fentanyl and Pentazocine remaining at the termination of anaesthesia is easily reversed by low doses of Nalorphine and Doxapram respectively.

14. Chest wall rigidity seen with Fentanyl responds well to the injection of succinylcholine chloride.

15. Pentazocine does not produce any chest wall rigidity seen frequently with Fentanyl.

16. Fentanyl is also notorious in producing apnoea which is not seen with Pentazocine.

17. Recovery from neuroleptanaesthesia is rapid, patients are able to respond to simple questions. The patients are tranquil and cooperative in the recovery room. Postoperative analgesia also stays for considerably long time.
18. Doperidol has got excellent antiemetic effect.
19. There are higher incidence of awareness during Doperidol, Pentazocine anaesthesia.
20. A small dose of Pentazocine at the end of operation reverses the respiratory depressant effects of Fentanyl while at the same time provides analgesia for much longer duration in postoperative period - a method of 'sequential anaesthesia'.

To conclude, modified method using Doperidol and Pentazocine, is better than Fentanyl group in terms of better cardiovascular stability during surgery, absence of severe respiratory depression, apnoea and ventilatory difficulty, rapid recovery from anaesthesia, longer duration of post operative analgesia. But higher incidence of awareness is a big draw back of this technique. The method is also convenient for clinical practice in that the analgesic used, is not a narcotic and not under D.D.A. control.