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# COMPARISON OF GENERAL ANESTHESIA VS GENERAL ANESTHESIA PLUS REGIONAL ANESTHESIA IN BARIATRIC SURGERY

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## INTRODUCTION

The word Bariatric is derived from the Greek word meaning “weight” and “iatric” meaning treatment. Approximately 7% of the world population is obese. Obesity is a global health problem & prevalence varies with socio economic status. In affluent countries like U.S the poor have the highest prevalence In developing countries it is the affluent that are at the highest risk Recently there is increase in incidence of childhood & adolescent obesity & importantly these children remain obese as adults.[1] Bariatric surgery means weight loss surgery; it includes a variety of procedures performed on people who are obese. Weight loss is achieved by reducing the size of the stomach with a gastric band or through removal of a portion of the stomach or by resecting and re-routing the small intestine to a small stomach pouch. Obesity is one & the greatest health challenges facing western world. Obesity is defined as body mass index (BMI)>30kgm$^{-2}$, where as those with (BMI)>35kgm$^{-2}$ and 55kgm$^{-2}$ are considered morbid obese and super morbidly obese respectively. Long-term studies show the procedures cause significant long-term loss of weight, recovery from diabetes, improvement in cardiovascular risk factors, and a mortality reduction from 40% to 23%.[2] Associated obesity related medical condition include hypertension, coronary artery disease, sudden (caudal) death, restrictive range disease, obstructive sleep apnea (OSA), Diabeties mellitus, gallstones various range of cancer are exclude from this studies.

General anaesthetics are often defined as compounds that induce a reversible loss of consciousness in humans or loss of righting reflex in animals. Clinically it’s a lack of awareness to painful stimuli, sufficient to facilitate surgical applications in clinical and veterinary practice. General anaesthetics do not act as analgesics and should also not be confused with sedatives. General anaesthetics are a structurally diverse group of compounds whose mechanisms encompass multiple biological targets involved in the control of neuronal pathways. The precise workings are the subject of some debate and ongoing research.[3] General anesthetics elicit a state of general anesthesia. It remains somewhat controversial regarding how this state should be defined. General anesthetics, however, typically elicit several key reversible effects: immobility, analgesia, amnesia, unconsciousness, and reduced autonomic responsiveness to noxious stimuli.[4-6]

## AIMS AND OBJECTIVES

To study the effect of anesthesia during Bariatric surgery by using general anesthesia and its assessing.

- Hemodynamic changes.
- Pain score (postop).
- Intraoperative surgical field.

## MATERIALS, METHODS AND OBSERVATIONS

### Data Collection

Anesthesia and intensive care medicine physicians were involved early in the planning process. In collaboration with the surgical team, a perioperative approach for patient care was developed for each individual patient. Investigators received institutional ethical committee approval and a waiver of informed consent prior to gathering and analyzing data. Patients who underwent bariatric surgery from Dec 2015 to Dec 2017 at CCM Medical College and Hospital Durg were identified using current procedure terminology codes. We arbitrarily chose this period of time for the equal number of months before and after institution of regional anesthesia for repair, and to allow for up to at least 1 year follow-up after the last discharge date to assess 1 year mortality. The hospital's decision support services analyst provided the authors with demographic data, charges for surgery and hospitalization, hospital characteristics, outcomes and insurance status.

Hospital charge data included physician fees, procedural charges, and equipment charges. Cost of hospitalization was estimated by applying the ratio of cost-to-charge for urban hospitals in the South Atlantic division[7] to the

amount charged for hospitalization. International Classification of Diseases, ninth edition (ICD-9) codes for up to 15 diagnoses and procedures are listed for each admission. We reviewed the perioperative anesthesia records and recorded type of intraoperative anesthesia (general vs regional) and postoperative analgesia (systemic uploads vs peripheral or neuraxial continuous nerve block). General anesthesia included the use of inhalational with or without intravenous agents for induction and maintenance of anesthesia. Regional anesthesia included the use of a neuraxial technique (single injection spinal, continuous spinal or continuous epidural anesthesia) with or without the use of a continuous peripheral nerve block. Of note, patients with failed neuraxial blockade who subsequently underwent surgery using general anesthesia were included in the general anesthesia (GA) group for analysis.

**Patient Selection criteria**

All surgeries were performed at CCM Medical College and Hospital. Patients were included in the retrospective review if their age was between 35- 65.

We identified 49 patients who underwent a total of 70 bariatric surgeries. Patients with preexistent D.M./H.T./Hypo/hyper thyroid were not included in the present study. Of the 49 patients included in the statistical analysis, 17 received regional anesthesia and 32 received general anesthesia intraoperatively.

**Table no 1: Shows Patient with General Anesthesia.**

| Wt./kg | Ht./cm$^2$ | BMI | Intraoperative B.P. mmtea | Intraoperative surgical field | Postoperative pain |
|---|---|---|---|---|---|
| 96.5 | 152 | 40 | 140/80 | Semi dry | 8 |
| 121 | 163 | 46 | 130/82 | Semi dry | 7 |
| 106 | 153 | 45 | 144/80 | Semi dry | 8 |
| 98 | 160 | 38 | 146/90 | Bloody | 9 |
| 88 | 151 | 39 | 138/92 | Blood field | 9 |
| 176 | 176 | 40 | 134/80 | OK | 8 |
| 114 | 160 | 44 | 140/82 | Miner ozivy | 10 |
| 80 | 149 | 36 | 132/88 | Bloody | 10 |
| 110 | 165 | 41 | 140/80 | dry | 9 |
| 127 | 157 | 41 | 132/70 | dry | 10 |
| 128 | 154 | 53 | 140/72 | Semi dry | 9 |
| 133 | 162 | 51 | 132/82 | Semi dry | 8 |
| 134 | 175 | 44 | 122/76 | dry | 7 |
| 108 | 165 | 40 | 134/82 | Dry | 7 |

0–10 Numeric Pain Rating Scale

0 1 2 3 4 5 6 7 8 9 10

No pain — Moderate pain — Worst possible pain

- In G.A. only VAP Scale is almost 10
- Blood pressure is on higher side
- Surgical field is Bloody almost

A Visual Analogue Scale (VAS) is a measurement instrument that tries to measure a characteristic or attitude that is believed to range across a continuum of values and cannot easily be directly measured. It is often used in epidemiologic and clinical research to measure the intensity or frequency of various symptoms. From the patient's perspective, this spectrum appears continuous ± their pain does not take discrete jumps, as a categorization of none, mild, moderate and severe would suggest. It was to capture this idea of an underlying continuum that the VAS was devised.[8,9]

The simplest VAS is a straight horizontal line of fixed length, usually 100 mm. The ends are defined as the extreme limits of the parameter to be measured (symptom, pain, health) orientated from the left (worst) to the right (best). In some studies, horizontal scales are orientated from right to left, and many investigators use vertical VAS.[10,11]

**Table no 2: Shows Patients with General Anastasia plus regional anesthesia i.e. Subarachnoid Black (SAB).**

| Wt./kg | Ht./cm$^2$ | BMI | Intraoperative BP (mmty) | Intraoperative surgical field | Postop pain |
|---|---|---|---|---|---|
| 105 | 149 | 46 | 100/70 | Dry | No pain |
| 130 | 156 | 54 | 90/70 | Dry | 1 |
| 121 | 141 | 61 | 102/72 | Dry | 1 |
| 113 | 160 | 45 | 106/74 | Dry | No pain |
| 113.2 | 161 | 44 | 92/68 | Dry | No pain |
| 140 | 157 | 57 | 94/74 | Dry | No pain |
| 116 | 170 | 41 | 100/64 | Dry | No pain |
| 147 | 166 | 54 | 70/60 | Dry | No pain |
| 139 | 156 | 56 | 90/72 | Dry | No pain |
| 115 | 160 | 45 | 100/60 | Dry | No pain |

In this group suborchroid black weep given with Sequence4ml (0.5%) with no 23 spinal needle at $L_2$-$L_3$ space.

- Surgical field is dry in this group.
- Blood pressure ramous on your side.
- Postoperative pain is (VAPS) is one or no pain.

## DISCUSSION

While giving anesthesia attention should be focused on issues to the obese patient, like cardio respiratory status and the airway. Patients presenting for bariatric surgery should be evaluated for systemic hypertension, pulmonary hypertension, signs of right and/or left ventricular failure, and ischemic heart disease. Patients those who are scheduled for repeat bariatric surgery may confront the anesthesiologist days, months, or years after the initial surgery, so the anesthesiologist should be familiar with possible metabolic changes in these patients. There may be long-term nutritional abnormalities include vitamin $B_{12}$, iron, calcium, and folate deficiencies.[12] Various factors such as the surgical technique, increased intra-abdominal pressure caused by pneumo peritoneum, medicines like anesthetics, analgesics, antibiotics, etc. and anesthetic technique can lead to postoperative hypercoagulability. Hypercoagulability can result in thromboemboli and also deep venous thrombosis (DVT) thus there is abnormal activation of blood coagulation, and endothelial damage.[13] Also the stress response, pain, and inflammation induced due to surgery may lead to hypercoagulability and may promote postoperative DVT. Morbid obesity is a major independent risk factor for postoperative sudden death. Heparin, 5000 IU subcutaneously, administered before surgery and repeated every 12 h until the patient was fully mobile to reduce the risk of DVT.[14,15]

It is recommended by the physicians that the patient's medications, except insulin and oral hypoglycemics, should be continued until the time of surgery. Antibiotic prophylaxis should be given because of increased risk of postoperative wound infection. Rates of wound infection after gastric operations for obesity are around 5%.[16]

For all bariatric procedures, multi-modal analgesics regimes can be adopted and may include: Other postoperative considerations should include appropriate thromboprophylaxis, proton-pump inhibitors, and postoperative antibiotics according to local protocols. Regular i.v. acetaminophen; short-term use of non-steroidal anti-inflammatory drugs, if not contraindicated and tramadol.Fluid management should be considered according to individual requirement.

If possible, regional anaesthesia is preferred over general anaesthesia, although a plan for airway management is still mandatory.[17] But there may be a higher risk of failure of regional techniques in the obese, and appropriate patient counseling and consent is advised.[18]

This has been found in second group (G.A.+R.A.) general anesthesia + regional Ana. Regional anesthesia was given with qui squencive (0.5%) 4ml in subarachnoid space ($L_2$-$L_3$) their by sympathetic vasodilatation occurs peripheral pooling of blood & decrease blood pressure. Which is comer sated with cystoids ringer lactate & dextrose normal saliva and sometime vasopressin had to be given to counteract profound hypotension & maintain B.P. at around 70 mmty surgical field remain dry in this group &help operating given in their surgical planes. VAPS (visual analog pain scale) is the score from 0-10 where patient compulsive no pain ie 0 & 10 means pain as bad as it could possibly be, in this group almost p+ has no pain or only 1 which again goes in favor of (G.A.+R.A.).

## CONCLUSION

In our study we noted that in 2$^{nd}$(G.A. +R.A.) there is significant drop in blood pressure which favors surgical field and imines surgery acumas hemodynamic stability and post operative pain which is required for cosmetic surgery. So (G.A. +R.A.) any time recommended& need of an hour as compare to only G.A.

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