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(Short Communication)

Choice Of Anesthesia For Repair Of Adult Inguinal Hernias In Enugu

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Abstract

Choice of anesthesia for repair of 82 adult inguinal hernias in Enugu State University Teaching Hospital, Enugu, South- East of Nigeria; was assessed from January 2015 to December, 2016. Traditionally, anesthesia for inguinal hernia repair has been general anesthesia. Regional anesthesia (spinal/epidural) been generally reserved for patients with poor cardio-respiratory status and local anesthesia usually for those whose age, infirmity or fear make other forms of anesthesia hazardous. Over the past 40-50 years, there has been a paradigm shift from this traditional approach such that today loco-regional anesthesia especially local anesthesia is considered the gold standard. This study found that the preferred choices of anesthesia by hernia surgeons in this tertiary health institution for repair of adult inguinal hernia is loco-regional with spinal anesthesia at 46% and local anesthesia at 40%. General anesthesia was used in only 14% of cases. The extensive use of loco-regional anesthesia improved day case inguinal hernia surgery world-wide with all its benefits.

Key words: Adult inguinal hernia, general anesthesia, loco-regional anesthesia, day case surgery.

INTRODUCTION

Anesthesia in a strict sense is a medical means that renders patients for surgery insensible to pain and other sensations and with general anesthesia unconsciousness is produced (Burkitt et al. 2009). Some form of anesthesia is required for most surgical procedures, with the aim of preventing pain among the benefits. General anesthesia however produces unconsciousness with loss of protective reflexes and greater expertise is therefore required to safely execute it (Burkitt et al. 2009).

It is the operating surgeon who makes a choice of anesthesia for his operations and administers local anesthesia. Administration of other forms of anesthesia is the responsibility of the anesthetist. In general, patients who can breathe spontaneously may not need assisted ventilation by a trained anesthetist (Burkitt et al. 2009).

A lot of handicaps are encountered while performing surgery in a developing country (Nicholls, 1977). The scarcity of trained anesthetist and lack of well-equipped theatres make operations under local anesthesia, where feasible, preferable (Mgbor, 1991). Use of local anaesthesia therefore makes it possible for more patients to access surgical treatment. The abdominal wall hernia repair accounts for 15-18% of all surgical procedures (Mebula and Chalya, 2012) and 7 in 10 cases of all abdominal wall hernias occur in the groin (Primatesa and Golacre, 1996; Garba, 2000).

The aim of this paper is to assess the choice of anesthesia by surgeons in Enugu for the repair of adult inguinal hernias and compare with global trends.

MATERIALS AND METHODS

This was a retrospective study conducted at the Enugu State University Teaching Hospital, Enugu: a tertiary health institution in South East Nigeria.

All cases of adult groin hernias repaired from January 2015 to December 2016 by the general surgical teams were included. Pediatric cases were excluded. We consulted the case notes, ward records and theatre registers of these patients. Relevant patient's socio-demographic information, clinical presentation, choice of anesthesia, method of repair and outcome were retrieved.

These findings were presented using tables and percentages as appropriate.

RESULTS

Within the period under study, 118 patients with various forms of external abdominal wall hernias were operated in our general surgical units. 82 patients (71.2%) had 88 inguinal hernias repaired. Six patients (5 males and 1 female) had bilateral inguinal hernias.

The male to female ratio was 6:1. The age range was 17 to 84 years with a median age of 50 years.

The commonest choice of anesthesia for repair in Enugu is spinal anesthesia. This is followed closely by local anesthesia and general anesthesia came a distant third.

Table 1: (Characterization of patients studied) *n*-82

	Number	Percentage
Gender	70	85.4
Male	12	14.6
Female		
Age Groups (Years)		
<39	18	22.0
40-64	41	50.0
>65	23	28.0
Mode Of Presentation		
Emergency (strangulated/obstructed)	2	1.0
Elective (incomplete)	69	80.2
Elective (complete)	11	12.0
Elective (bilateral)	6	7.0
Types Of Procedure		
Bassini/Modifications of Bassini	58	71.0
Open mesh (Lichtenstein)	24	29.0
Other types of repair (eg Shouldice/Desarda)	--	----
Choice Of Anesthesia		
Spinal anesthesia	38	46.0
Local anesthesia	33	40.0
General anesthesia	11	14.0
Types Of Admission		
Day case	26	31.7
Overnight admission (Short stay)	53	64.6
Admission for approx. 1 week	03	03.7

DISCUSSION

The inguinal hernia repair is a common general surgical operation world-wide accounting for 10-15 percent of all surgical procedures and second most common procedure after appendectomy (Ngowe et al. 2005; Untracht, 2010). All inguinal hernias, ideally, should be repaired early to reduce the risk of complications especially the risk of strangulation.

Since 1887 when Eduardo Bassini, the first modern inguinal herniorrhaphist, described his method for inguinal hernia repair the most preferred choice of anesthesia for most hernia surgeons has been general anesthesia (Bokitt et al. 2009).

Essentially patients for general anesthesia would receive premedication with atropine intramuscularly 60 minutes before or intravenously at induction of anesthesia. This is followed by pre-oxygenation with a face mask for 3 minutes. Intravenous thiopentone sodium, ketamine or propofol is used for induction. Intravenous suxamethonium is then given to paralyze the patient who is now intubated orotracheally. Anaesthesia is maintained by nitrous oxide, halothane or isoflurane and intermittent positive pressure ventilation started with full muscle relaxation using muscle relaxants like pancuronium or atracurium (Famemo, 2004). At the end of the procedure muscle relaxation is reversed with neostigmine and patient monitored until spontaneous ventilation becomes satisfactory (Famemo, 2004).

For spinal anesthesia the patient is premedicated with atropine as above and preloaded with 500-1000ml of normal saline. The back of the sitted patient is prepared with antiseptics and the skin and subcutaneous tissues infiltrated with 1% xylocaine in the $3^{rd}/4^{th}$ lumbar intervertebral space. A spinal needle is then used to access the subarachnoid space and 3-5ml of 0.5% bupivacaine or 5% solution of plain xylocaine injected to anaesthetized the patient from the umbilicus downwards (Famemo, 2004). Bupivacaine is referred because it is approximately 4 times as potent as lignocaine and has a duration of four hours as against 1 hour for lignocaine (Famemo, 2004).

For local anaesthesia, the patient is premedicated with atropine and sedated with diazepam or midazolam. Then 200-300mg of lignocaine with adrenaline (10-15ml of 2% solution) is diluted with 60ml of normal saline and used to infiltrate the operation field from pubic tubercle to above the internal inguinal ring. This will reversibly block the conduction of nerve impulses to block pain, temperature and motor functions in the inguinal region (Famemo, 2004).

A technique of local anaesthesia by field block for inguinal hernia is also described. In this the nerve supply of the inguinal region which is from the lumbar plexus- ilioinguinal (LI), iliohypogastric (LI) and genitofemoral (L12) are blocked sequentially with diluted lignocaine near the anterior superior iliac spine, above the midinguinal point and the pubic tubercle (Famemo, 2004).

Whatever method is decided, patient's vital signs, oxygen saturation and blood loss are monitored and managed appropriately. The patient's physiology at presentation, proposed surgical intervention and possible post-operative complications all play some

roles in the choice of anesthesia administered for repair of inguinal hernia (Ayandipo et al. 2015). For all complicated groin hernia cases and all large complete hernias, general anaesthesia was used. This is more for the convenience of the surgeon/anaesthetist as spinal could also be used. The most preferred choice of anesthesia in our centre for repair of inguinal hernia is spinal anesthesia. This is the same trend in Umuahia, where all their inguinal hernioplasties were done using spinal anesthesia (Enyinnah et al. 2013).

Choice of spinal anesthesia was followed by choice of local anesthesia by local infiltration. Local anesthesia is the commoner choice in the tertirary hospitals in Ibadan, Ile-Ife, Jos and at the Lichtenstein hernia hospital, in Califonia (Lichtenstein et al. 1989; Agbakwuru et al. 1995; Kamyil et al. 2000; Ayandipo et al. 2015). In our centre general anesthesia was reserved for complicated hernias, those who had failed spinal anesthesia or some who are so apprehensive of the agony of the knife.

The choice of anesthesia influences the practice of ambulatory (day case) hernia surgery (Lichtenstein and Schulman, 1986; Mbah, 2007). Majority of our patients stayed overnight after inguinal hernia repair. We believe that because we do not have 'day case only' theatres, patients are admitted with other elective cases into the wards. The operation list is never skewed in their favour and those operated on later in the day usually do not completely process their discharge same day. We are sure that dedicated day case theatres will improve our ambulatory inguinal hernia surgeries.

Many large incarcerated inguinal hernias are found in Africa (Adesunkami et al. 2000). The argument is that repair under local anaesthesia may be difficult or unpleasant to patients and therefore that general or spinal anaesthesia may be better. Our take on this is that in the best interest of the patient, appropriate anaesthetic technique for size of hernia, general condition of the patient and cost, all must be considered when deciding the choice of anaesthesia for repair of adult inguinal hernia.

CONCLUSION

Our observation from this study shows that the choice of anesthesia for inguinal hernia repair in our centre is tending towards the more conservative anesthesia of regional and local. This is not only because expertise and equipment are scarce in Nigeria but even in developed worlds it does appear that the trend is towards day case surgery, which can only be made possible by more extensive use of loco-regional anaesthesia, especially local anaesthesia. Day case inguinal hernia repair is feasible, safe, cost effective and should be the ideal operation when dealing with uncomplicated inguinal hernia in a physiologically fit adult.

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