World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-3, October-2021
ISSN: 2749-3644

A COMPARATIVE ANALYSIS OF THE TYPES OF ANESTHESIA IN TOTAL HIP ARTHROPLASTY

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Article history:

Received: August 10th 2021
Accepted: September 11th 2021
Published: October 18th 2021

Abstract:

The research aims to know the techniques used for the changes in Total Hip Arthroplasty, where 100 patients were collected from Iraqi Red Crescent Hospital, Baghdad, Iraq.
Where two types of anesthesia were released upon, general, the second technique is Lumbar sacral PB, and the ages range between 30 to 60.
Over the past decades, Orc replacement has become a major demand. It has expanded in direct proportion to demographic changes, with affected populations experiencing an increased rate of comorbidity and serious complications. It has been suggested that the choice of anesthesia affects the surgical setting and the perioperative outcome as a whole. Therefore, various anesthesia methods and techniques have been developed to provide hip surgery patients with individualized anesthetic and palliative care. Recent studies on comparative efficacy using population-based data have given us new insight into anesthesia practice and outcomes, demonstrating positive outcomes.
After surgery, the rehabilitation process requires time and commitment in the first 4-6 weeks after the operation. Walking aids such as crutches and can follow a program of exercises aimed at helping to recover and then improve the use of the new hip joint.

Keywords: AG, Hip, blood, Postoperative dose.

INTRODUCTION

The methods used in anesthesia varied, depending on the type of operation. The choice of the optimal method of anesthesia for hip orthotics depends on the patient's general condition, the nature of the injury, the presence and severity of concomitant diseases, and age-related changes in organs and systems [1].

The most important point is to determine the degree of urgency of the process. In isolated limb injuries, the number of victims requiring emergency surgical care is about 5% (open and closed bone fractures with damage to large vessels, separation of parts of the limbs while maintaining conditions for re-implantation, traumatic dislocation of parts showing signs of limb ischemia) [2,3,4,17].

It should be remembered that in wounded and injured patients with decompensated blood loss, shock, the use of local anesthetics can aggravate hypotension. Therefore, general anesthesia with mechanical ventilation is preferred. This type of anesthesia should also be chosen for long-term interventions (more than 1.5 hours), surgical

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operations on several parts of the body, with a non-physiological position of the patient [5,6,7].

The anesthesia technique used for hip orthosis also depends on the age of the patient, in addition to the concomitant and concomitant diseases.

General anesthesia is the most commonly used method to support anesthesia for planned trauma operations. When used, it is important to pay attention to thorough psychological preparation and adequacy of pre-anesthesia. [8,9,10]

Where medication is made, by relying on narcotic analgesics, reduces suffering when moving to the operating table and during the siege [11,13,15].

The choice of the method of regional anesthesia depends largely on the site of the injury and the nature of the surgical intervention, as explained in

Table 1

Localization of surgical intervention	**Nerve block-level shown**	**Recommended blockade technique**
Clavicle surgery	Brachial plexus and cutaneous branches of the cervical plexus	Interstitial blockade with the addition of its preterminal blockade of supraclavicular nerves
Shoulder surgery	Brachial plexus, cutaneous branches of the cervical plexus, intercostal-brachial nerve	Interstitial blockade with the addition of its preterminal blockade of supraclavicular nerves, intercostal-brachial nerve
Shoulder (internal and percutaneous osteosynthesis of the humerus, reconstructive operations on soft tissues, vessels, nerves, starting from the level of the shoulder joint and below)	Brachial plexus, branches of the intercostal-brachial nerve and the musculocutaneous nerve of the shoulder	Interstitial blockade with the addition of blockade of the intercostal-brachial nerve and the musculocutaneous nerve of the shoulder
Elbow joint (various arthroplasty operations), forearm (all types of osteosynthesis and reconstructive interventions), hand (when using a tourniquet)	Brachial plexus	Supraclavicular brachial plexus block or axillary brachial plexus block
Brush (without using a tourniquet)	Trunks of the ulnar, radial and median nerves	Ulnar, radial, and median nerve block at wrist level
The hip joint, proximal thigh, knee joint (extensive reconstructive and restorative surgeries with little possibility of predicting their duration)	Lumbar and sacral plexus	Prolonged epidural anesthesia with epidural catheterization
Hip joint, proximal and distal parts of the thigh (surgical interventions with a predicted duration of no more than 3 hours), surgical interventions on more distal parts lasting from 1 to 3 hours	Lumbar and sacral plexus	Spinal anesthesia
Knee joint (osteosynthesis, various types of reconstructive and videoscopic operations)	Nerve trunks of the lumbar and sacral plexuses	Spinal anesthesia
Shin, ankle (surgical interventions of various volume and complexity)	Femoral and sciatic nerve trunks	Spinal anesthesia
Foot (reconstructive surgery of any complexity)	Tibial and common peroneal nerves	Spinal anesthesia
Foot (small and medium-sized surgical interventions)	Posterior tibial, deep peroneal nerves, the saphenous nerve of the leg, superficial peroneal nerve	Spinal anesthesia

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MATERIAL AND METHOD

A descriptive study was conducted in which 100 patients were collected from Iraqi Red Crescent Hospital, Baghdad, Iraq, from January 2020 to May 2020. The research aimed to know all the techniques used in anesthesia for hip arthroplasty patients.

The sample was divided into two parts, which included 60 patients who underwent general anesthesia, while the second section included 40 patients who underwent Lumbar sacral PB, and their ages ranged between 30 to 60 years

All existing data were reviewed, like all general data from patients related to age, sex, height and weight, in addition to other data, were withdrawn by an observer in the pre-and postoperative period, and then all information related to patients was submitted to the statistical analyzer to analyze the data.

In addition, the type of anesthesia used in operation was recorded to know the type of subsequent effects that the patient is exposed to and the use and dose of the vascular plug during the operation, not forgetting to record the changes that occur to the patient in the postoperative period, which may include such as transfer to the intensive care unit, Dosage of opioids in the first.

STATISTICAL ANALYSIS

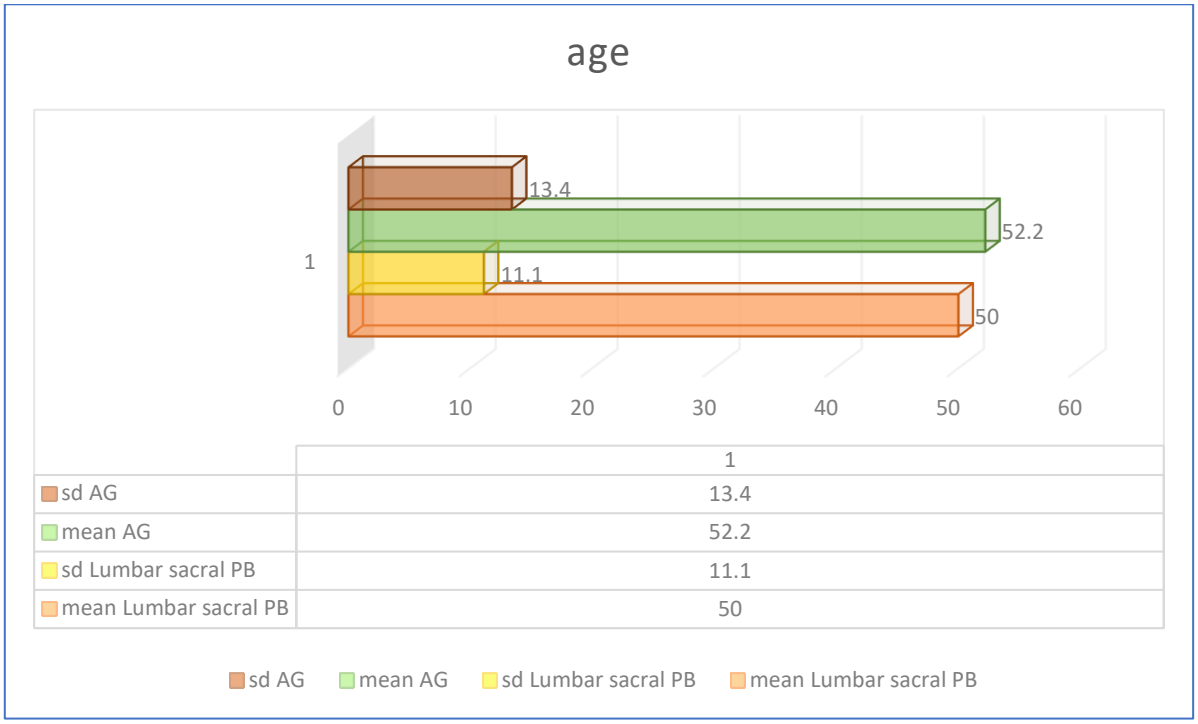
Several techniques were relied on by the statistical analyst by relying on the SPSS 25 program, which included the following analyzes:

1. Mean ±SD
2. Correlation
3. P-value
4. Compare

RESULTS:

Statistical analysis identified the true value of the patients' ages, and the arithmetic mean value was also extracted, as shown in Figure 1.

Figure 1- Mean and SD depend on age.



	1
sd AG	13.4
mean AG	52.2
sd Lumbar sacral PB	11.1
mean Lumbar sacral PB	50

The samples were also divided into males and females, where the females in Lumbar sacral PB patients included 33 patients, as for AG, where the percentage of females was less than 23, as shown in Figure 2

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Figure 2- disturbance depend on gender.

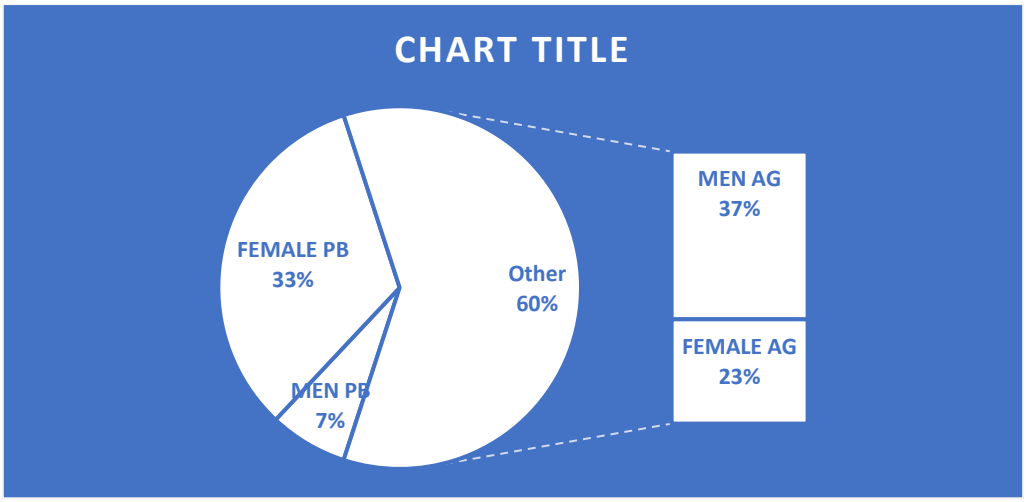

Table 2 - general demographic results of patients.

v	PB	AG
Body mass index	23.7±4.8	25.6±6.2
Smoking	11.2±5.4	23.3±7.1
Diseases		
Cardiovascular	22	25
Surgical Diagnosis		
Hip arthrosis	15	33

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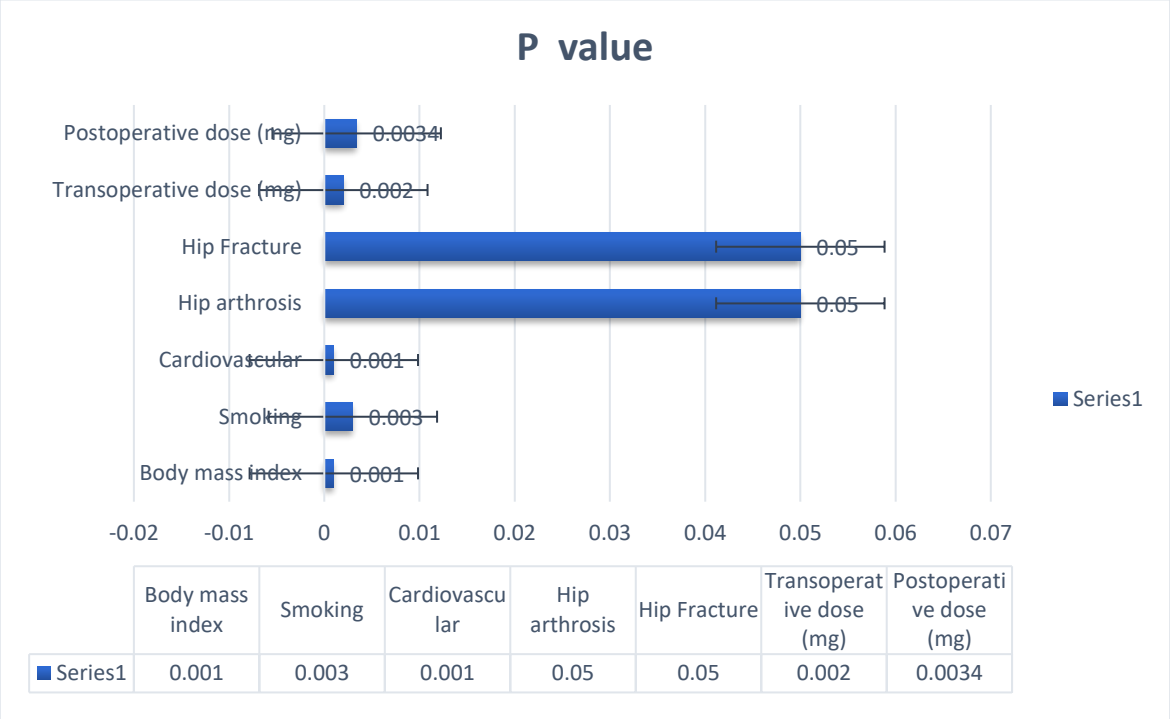
Hip Fracture	21	20
Other4	4	7
Perioperative mean opioid dose between anesthetic techniques		
Transoperative dose (mg)	19.4±5.8	45.3±18.2
Postoperative dose (mg)	15.7±28.8	45.3±50

Figure 3- p-value of general demographic.



However, conduction anesthesia may be preferred due to superior pain control and reduced side effects. To treat pain, LA medications are often given by repeated injection or continuous infusion through a catheter. LA medications are often combined with other agents such as opioids to make a synergistic analgesic.

Low LA drugs can be sufficient so that muscle weakness does not occur and patients may be mobilized.

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Figure 4- Trans Anesthetic use of vasopressor.

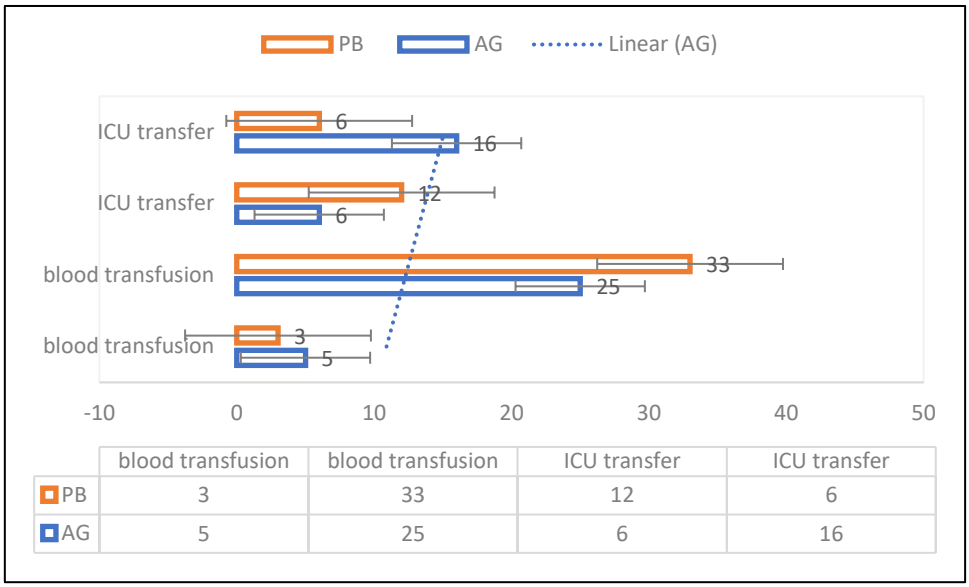

Table 3 - Pain after the operation.

	AG	PB Lumbar sacral
Post-anesthesia care unit	7	6
24 hrs	18	5
48 hrs	10	5
72	5	3
Hospital stay	3-10	3-6

DISCUSSION

The research aims to administer anesthesia under hip replacement, where the research aims to find out which type of anesthesia is suitable for this situation, as it was observed when using general anesthesia, which was converted and resorted to as a result of several reasons, including the presence of incomplete obstruction on the airway.

In addition, when using the general anesthesia technique, it was noted that there were no muscle problems, not forgetting the percentage of being in the hospital, which was between 3-10 days. This percentage is more than when using the lumbar-sacral PB technique, which was between 3 to 6 days, where

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it has been noted that there are requirements to blood pressure in patients who undergo this anesthesia.

Where the monitoring system for the patient depends on several factors, including comorbidity and duration; in addition to this is the quality of the patient's condition, as the central venous access may be a good point for patients with cardiovascular comorbidity, where patients are more likely to have Influential myoclonus, central venous access is possible midway through surgery in the lateral position. Still, it can be more anatomically challenging as invasive arterial monitoring allows perioperative blood sampling and faster hypotension detection.

The method of choice for anesthesia for total hip arthroplasty is an epidural or a combined epidural. Given the patient's position on the side of the table, mechanical ventilation is recommended to prevent the development of hypotension and a reduced volume of cardiac stroke; ephedrine may be administered at a dose of 5 mg intravenously 10 minutes before the administration of the main dose of anesthesia. In the absence of an effect and an increase in clinical manifestations of the cardiac depressant action of a local anesthetic with a pronounced tendency to hypotension, drip infusion of adrenergic agonists (ephedrine and dopamine) is used. At the end of the operation and the resolution of the epidural mass, the need for infusion of adrenergic agonists disappears

During orthopedic operations on large bones (especially in the femur and hip joint), the probability of occlusive and thrombotic complications is high. Therefore, in hip surgeries, the frequency of DVT is up to 60%, and PE can develop within 35 days after the operation. Latent PE is detected in patients with deep vein thrombosis by perfusion survey in about 80% of cases. Clinical manifestations of PE occur in 5% of patients as the risk of embolism increases with sharp and hammer blows to the bone resulting in a significant increase in intraosseous pressure. This is especially dangerous when the prosthesis is inserted into the bony canal. The occurrence of difficult-to-explain hypotension is often the result of the sebaceous embolism. Hence, one of the most important tasks by anesthesia is to ensure good blood flow, including in the microvessels, which is achieved by conducting adequate infusion therapy and transfusion. It is also necessary to carry out systematic prevention of thromboembolism.

CONCLUSION

Postoperative pain is usually higher than after a primary hip replacement for several reasons. A larger surgical incision is often required to access the acetabulum and femur. A much larger surgical injury to the bone dissection is performed to remove and re-implant the implants.

Patients must continue to take analgesics regularly until surgery and may significantly increase postoperative analgesic requirements due to decreased opioid receptors; and This should be taken into account in the decision for postoperative analgesia

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Volume-3, October-2021
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