ORIGINAL RESEARCH PAPER

Volume-7 | Issue-6 | June-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

A STUDY OF COMPLICATIONS FACED IN SPINAL ANESTHESIA

Anaesthesiology

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ABSTRACT

Spinal anaesthesia is one of the most popular and widely used anaesthetic procedures. Due to the invasive nature of spinal anaesthesia, there are several types of complications that may occur with different incidence. This study is intended to shed some light on the complications faced during or after the procedure.

KEYWORDS

Spinal anesthesia, complications, hypotension, cardiac arrest.

Introduction:

Spinal anaesthesia is one of the most popular and widely used anaesthetic procedures. It is a simple, cost effective and efficient technique that provides complete sensory and motor block, as well as postoperative analgaesia with a high success rate. Several advantages of spinal anaesthesia include a decreased incidence of deep vein thrombosis, reduced intraoperative blood loss, as well as the prevention of pulmonary aspiration in case of emergency, especially in patients with potential airway problems and known respiratory diseases. Due to the invasive nature of spinal anaesthesia, there are several types of complications that may occur with different incidence. At least some of these problems appear to be inevitable and as such, it is not possible to eliminate them all. Fortunately, more severe neurological complications such as death, neuropathy, arachnoiditis and permanent neurologic injury are seldom observed. In a national survey performed in the UK, the incidence of permanent neurologic injury and death ranged from 0. 7 to 1. 8 in 100, 000 patients [1-4]. On the other hand, proper patient selection, meticulous attention to detail, well-known patient related changes and in the case of difficult circumstances, using image techniques [x rays, fluoroscopy and ultrasound] as a guide may help to prevent or decrease complications. Increasing co-morbidities, concomitant medication, surgery for advanced malignancy, patients with compromised immune systems, as well as instances of infection poses a real challenge to the use of spinal anaesthesia. Patients with degenerative vertebral anomalies or who have undergone previous spinal surgeries are also difficult cases; these require further evaluation and an increase in efforts for properly performing intrathecal anaesthesia and analgaesia in contexts where it may lead to undesirable consequences[5-9].

Aims and Objectives:

To study the complications of the Spinal Anesthesia

Materials and Methods:

The study was conducted in Department of Anesthesiology, Azeezia Institute of Medical Sciences and Research , India from a period of December 2016 to November 2018.

A total of 360 patients who were planned to undergo surgery under spinal anesthesia, and satisfying the inclusion criteria were enrolled into the study. A written informed consent was taken from all the patients.

The complications faced during and after the procedure were promptly recognised and immediately treated. The complications were noted.

Inclusion Criteria

1.All the patients were aged between 20 and 60 years. This was done to decrease the age related bias.

Exclusion Criteria:

1.The patients who were known to have previous complications and past history of heart or lung diseases were not included in the study.

All the statistical analysis was done using the latest SPSS software 2016, California

Results:

Table 1: Age distribution:

Age	35.44
Standard Deviation	7.88

Table 2: Incidence

Total	Incidence	Percentage
380	141	37.1

Table 3: Significance

Total	X-Value	P-Value
141	0.673	0.0018

Its significant

Table 3: Complications

Complications	Frequency
Hypotension	03
Hypothermia	01
Post-dural-puncture headache	69
Transient neurologic symptoms	01
Urinary Retention	15
Haematologic complications	02
Infections	01
Neurologic complications	00
Cardiac arrest and perioperative death	01

Table 4: Significance for Post-dural-puncture headache

Total	X-Value	P-Value
69	0.787	0.0019

Its significant.

Discussion:

Hypotension is an inevitable complication of spinal anaesthesia that occurs when the sympa- thetic chain becomes blocked, especially when higher dermatome levels are needed. A drop in blood pressure may initiate nausea and vomiting, indicating ischaemia on the spinal cord, which in turn induces an undesired condition for the patient and operating staff. Blood pressure changes between the left lateral to supine position has been determined as an indicator for predicting a perioperative decrease in obstetric patients undergoing caesarean delivery under spinal anaesthesia [2].

A decrease in body temperature is commonly encountered after neuraxial anaesthesia. Subarachnoid local anaesthetic administration blocks all afferents of skin temperature that patients are unable to release the decrease in core temperature. Vasodilation due to sympathet- ic blockade increases skin blood flow, which allows for lowering the body's core temperature [7].

PDPH is a troublesome complication, mostly observed in middle-aged

women and the obstetric population. Lower body mass index, previous PDPH and the presence of chronic headaches are other risk factors. Headache rarely occurs in the paediatric population, espe- cially in neonates, but some physicians believe that this may be due to the inability to com- municate pain in early childhood. PDPH also decreases with age, which may be related to changes in the composition of cerebral content, which increase on cerebrospinal fluid [CSF] that may compensate and prevents its occurrence. [6].

Radicular symptoms, including pain, a burning sensation on the buttocks, dysaesthesia and paraesthesia may be observed following spinal anaesthesia. These symptoms generally subside within two days. But these clinical features are alarming for possible serious conse- quences. There is no representation of these symptoms on radiographs, CT or MRI. [5].

Bladder distension during the postoperative period produces discomfort to patients and unless relieved, leads to more severe complications, including permanent injury to the detrusor muscle. Spinal anaesthesia influences urination by blocking all afferent nerve fibres, rendering the patient unable to feel bladder distension or urinary urgency. [2].

Spinal haematoma following spinal anaesthesia is a severe complication that requires early surgical intervention to prevent permanent neurological damage. Classically, the incidence of this condition has been accepted as 1 in 220, 000 patients undergoing spinal anaesthesia, but the actual incidence remains unknown and is presumed to be on the increase. Advanced age, female gender, patients receiving drugs that influence coagulation, difficulty in performing block and placement of the indwelling epidural catheter are mentioned as risk factors. [1].

Although bacterial meningitis following neuraxial anaesthesia is an uncommon complica- tion, in cases where it does occur it may result in severe harm, including permanent neurologic disability and death. The presence of a fever and neurologic disturbance may provide a differentiation from PDPH. [8].

Bradycardia and cardiac arrest are the most worrisome complications related to spinal anaesthesia. The incidence of these conditions has been observed to be higher with spinal block in comparison with general anaesthesia. Patients are generally healthy, ASA class I or II, athletic and male with parasympathetic overtones. The influence of cardio-accelerator fibres originating between T1 to T4 plays a crucial role in maintaining blood pressure and heart rate according to the level of anaesthesia induced by spinal block, depleted vascular volume or insufficient replacement with fluids, and the presence of deep sedation is considered a risk factors for bradycardia and cardiac arrest. [9].

Complications:

Various complications may occur during spinal anaesthesia and are widely related to the procedure itself or drugs used during the procedure. These complications occur with differing incidence and in the case of at least some, appear to be inevitable and to be expected due to the invasive nature of the blockade.

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