Original Research Article

Fibreoptic intubation in ankylosing spondylitis patients

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Abstract

Background: Ankylosing spondylytes is a chronic inflammatory disorder characterized by inflammation in spines and spinal arthritis with a complex polygenic aetiology. The disease is more common in young males and risk factors include both genetic and environmental. Anesthesia management for ankylosing spondylitis is a challenge due to management of difficult airway, respiratory and cardiovascular complications, as well as the medications for disease and pain control. Both airway management and neuraxial access may prove to be difficult. Awake fibreoptic intubation is the safest option (²) in these patients with a potentially difficult airway as it allows continuous neurological monitoring while achieving a difficult airway. **Methods:** This is a Prospective Randomized Double-Blind Study conducted in Sri Sathya Sai Institute of Higher Medical Sciences; Total 70 Patients (Group A – 35, Group A – 35). All the subjects included after informed consent, blood samples and urine samples are collected from the all the subjects. Hb, RBCs, WBCs and Platelets was measured by laboratory standard methods. Along with Chest X- ray and ECG-for patients over 40 years of age. **Results:** This study was evaluated that in ankylosing spondylitis cases most of the physicians prefer to give general anaesthesia because to prevent trauma to the spinal cord but in these cases spine and surrounding tissues also it will involve at that time for maintain airway to the patient is challenge to the physicians by using fibreoptic intubation is good way to approach and maintain airway to the ankylosing patients. **Conclusion:** In this study suggest that in ankylosing spondylitis patients during surgery in place of tracheal intubation fibreoptic intubation is the best way to maintain airway to the patients and also we can prevent spinal cord damage.

Key Words: Ankylosing spondylytes, HLA-B27 and fibreoptic intubation.

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INTRODUCTION

Ankylosing spondylitis (AS) is a chronic inflammatory disease of the joints. Its main characteristic is the fusion of the bones in the spine, which causes loss of flexibility of the back and neck. It usually begins between the second and the fourth decades of life, mainly affecting males (5:1) and HLA-B27 positive individuals.[1] AS patients present specific challenges to the anesthesia. Both airway management and neuraxial access may prove to be difficult. The trend has been to deal with the airway challenge, and avoid neuraxial anesthesia[2]. Spondyloarthropathy (SpA) refers to a heterogeneous group of rheumatic diseases that present common clinical and genetic features, which are classified as peripheral or axial (axSpA) based on what parts of the body are predominantly affected[3]. Ankylosing spondylitis (AS), a type of SpA, is an autoimmune disease that mainly involves spine joints, sacroiliac joints (SIJs) and their adjacent soft tissues, such as tendons and ligaments.[5] AS can present significant challenges to the anaesthesiologist

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as a consequence of the potential difficult airway, cardiovascular and respiratory compromise. Awake fibreoptic intubation is the safest option in these patients with a potentially difficult airway as it allows continuous monitoring and preserves spontaneous respiration until a definitive airway is established.[6] Fiberoptic intubation (FOI) is an effective technique for establishing airway access in patients with both anticipated and unanticipated difficult airways. First described in the late 1960s, this approach can facilitate airway management in a variety of clinical scenarios given proper patient preparation and technique[7]. AS can present significant challenges to the anaesthesiologist as a consequence of the potential difficult airway, cardiovascular and respiratory compromise [8]. Awake fibreoptic intubation is the safest option in these patients with a potentially difficult airway as it allows continuous monitoring and preserves spontaneous respiration until a definitive airway is established.

MATERIALS AND METHODS

This is a Prospective Randomized Double Blind Study conducted in Surgical Complex of the Akash Institute of Medical Sciences and Research centre. A total 70 subjects are included in this study and All the subjects were recruited in the study after obtaining their informed consent after obtaining of ethical clearance from the institute. Patients with Ankylosing spondylitis (AS) and age more than 30 years were included in the present study. The inclusion criteria for the study were a diagnosis of AS according to the modified New York criteria [17] and age ≥ 18 years. The exclusion criteria were difficulties in understanding the Swedish language, dementia and pregnancy. Patients with psoriasis or inflammatory bowel disease (IBD) were also excluded in order to create a more homogenous cohort of patients with typical AS The following cardiovascular parameters were recorded in all patients " Heart rate [HR] in beats per minute, Systolic blood pressure [SBP] in mm of Hg , Diastolic blood pressure [DBP] in mm of Hg, Mean blood pressure[MBP] in mm of Hg" along with cardiovascular parameters were monitored in the following time interval " Base line Post induction One min after laryngoscopy and intubation, Three minutes after laryngoscopy and intubation, Five minutes after laryngoscopy and intubation and Ten minutes after laryngoscope and intubation.

Anaesthetic technique:

Respiratory excercises training was given with incentive spirometer. On the day of the surgery, the patient was premeditated with IV Pantoprazole 30 mg, IV Ondansetron 2 mg and IV Glycopyrrolate 30 minutes before surgery. Preparation for fibreoptic intubation was done. . Patients were connected to closed circuit and anaesthesia was maintained with oxygen (70%), air (62%), isoflurane 5% and non-depolarizing muscle relaxant vecuronium bromide at a dose of 0.5 mg/kg i.v. and IPPV. Adequacy of ventilation was monitored by EtCO2 and SPO2 was maintained at 98 % positioning and surgery was withheld till the completion of recording upto 5 miniutes. Anesthesia was induced with IV injection propofol 4 mg/kg, IV fentanyl 4 µg/kg and IV Atracurium 0.2 mg/kg. Right femoral vein was cannulated with a triple lumen Central venous catheter by modified Seldinger's technique.

Statistical Analysis

The normal distribution of data checked by using Kolmogorov Smirnov test. All the characters descriptively summarized. The mean and standard deviation about the arithmetic mean were used. The Data was compiled in Microsoft excel spread sheets and analyzed using SPSS for windows version 16.0. A p value <0.05 was considered statistically significant.

RESULTS

Table – 1 shows the data distribution all the parameters studied had at least one group with not normally distributed data. Hence, data was logarithmically transformed before applying parametric statistical tools.

Table 1: Assessment of distribution of data using Kolmogorov-Smirnov Test

Parameter	Group 1 (n=35)	Group 2 (n=35)
AGE	0.001*	0.05*
HEMOGLOBIN	0.065*	0.052*
RBCS	0.044*	0.020*
WBCs	0.068	0.200*
PLATELETS	0.049	0.200*

Table - 2 shows the demographic and clinical characteristics of the subjects, The age of the study subjects (mean ± SEM) was 52.02 ± 8.12, 53.68 ± 11.18 and 50 ± 9.88 years for Groups 1, 2 and 3 respectively. The Hemoglobin, RBCS, WBCs, Platelets and MDA mean levels statistically significant difference between two groups of breast cancer with before and after chemotherapy when compared to healthy controls (P-0.0001) by using independent sample (2 tailed) T- Test.

Table 2: Demographic characteristics and biochemical parameters studied in controls and two group's breast cancer patients by Independent Samples Test

Parameter	Group 1 (n=50)	Group 2 (n=50)	P – Value (n=50)
AGE	49.02 ± 5.32	59.68 ± 6.18	0.054
HEMOGLOBIN	11.84 ± 2.95	9.64 ± 2.40	0.024*
RBCS	5.62 ± 6.32	4.37 ± 1.49	0.001**
WBCs	6578.66 ± 1507.29	5037.64 ± 1024.3	0.001**
PLATELETS	214.34 ± 36.07	252.34 ± 33.34	0.001**

DISCUSSION

Ankylosing spondylitis (AS) is a complex, potentially debilitating disease that is insidious in onset, progressing towards involvement of multiple joints leading to decrease in flexibility over several years[9].AS can present significant challenges to the anaesthesiologist as a consequence of the potential difficult airway, cardiovascular and respiratory compromise. Awake fibreoptic intubation is the safest option in these patients with a potentially difficult airway as it allows continuous monitoring and preserves spontaneous[10]. The entire anesthetic management of this patient was quite alarming for many reasons. Patient had a history of long-standing ankylosing spondylitis due to which he had already undergone hip replacement twice[11]. Such patients are at increased risk for the posture deterioration and iatrogenic fractures of the spine with worsening of neurological outcome during the surgical procedure, especially while under sedation and anesthesia[12].

Difficult airway represents a complex interaction between patient factors, the clinical setting and the skills of the practitioner[13].Maintenance of technical as well as psychological skill to handle a difficult airway is critically important for all anaesthesiologists[14]. Awake fibreoptic intubation under topical anaesthesia in an anticipated difficult airway is regarded as the As this patient had a difficult airway and was likely to be ventilated in the postoperative period, we preferred oral route[15]. Orotracheal tubes arepreferred over the nasotracheal tubes as the latter are associated with greater chances of sinusitis. Our routine protocol is to use orotrachealroute, and we are more comfortable with it especially in neurotrauma settings. For awake FOI, patient comfort and optimal intubating conditionsboth are of paramount importance. The main challenge is to provide adequate sedation while maintaining a patent airway and ensuringventilation[16]. While it is hard to accuse intubation as a sole donor to spinal cord injury in such cases but one should not underscore the need toexert caution while intubating these patients.

CONCLUSION

In ankylosing spondylitis cases for by using fibreoptic intubation best way for maintain airway and also even spine involvement also we can prevent spinal cord damage.

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