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Study on outcome of administration of aspirin on suxamethonium induced myalgia

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Abstract
This study was planned out to find out the consequences of oral aspirin in decreasing the frequency of post-operative myalgia triggered by supervision of suxamethonium and to relate it with precurarization (with pancuronium) and with a control group of patients.

The group I patients were precurarised by giving injection pancuronium 0.01 mg/kg body weight intravenously three minutes before commencement of induction of anaesthesia. This group of patients showed 7 cases without fasciculation, 3 cases of mild fasciculation. The group II patients were administered with soluble aspirin (tablet Disprin) 600 mg orally one hour before induction of the anaesthesia. This group of patients had only one patient without fasciculation. 6 patient's showed mild fasciculation, 2 with moderate fasciculation and 1 case with severe fasciculation. In control group of patients 1 case was observed with no fasciculation, 5 cases with mild fasciculation, 2 cases with moderate and 2 severe cases of fasciculation.

Hence the data revealed that the Preoperative aspirin 600mg orally 1 hr before operation effectively reduces Suxamethonium induced pain and avoid complications associated with pretreatment with non-depolarising agents. This is helpful to avoid the side effects arises due to Suxamethonium.

Keywords: oral aspirin, suxamethonium, fasciculation etc.

Introduction

Suxamethonium chloride, also known as suxamethonium or succinylcholine, is a medication used to cause short-term paralysis as part of general anesthesia [1]. This is done to help with tracheal intubation or electroconvulsive therapy [1]. It is given either by injection into a vein or muscle [2]. When used in a vein onset of action is generally within one minute and effects last for up to 10 minutes [2].

Common side effects include low blood pressure, increased saliva production, muscle pain, and rash [2]. Serious side effects include malignant hyperthermia and allergic reactions [3]. It is not recommended in people who are at risk of high blood potassium or a history of myopathy [1]. Use during pregnancy appears to be safe for the baby [4]. Suxamethonium is in the neuromuscular blocker family of medications and is of the depolarizing type [2]. It works by blocking the action of acetylcholine on skeletal muscles [2].

Myalgia is pain originating in the muscles of mastication and differs from Temporomandibular joint pain in several ways. Myalgia is only loosely correlated with jaw function, whereas joint pain is a direct function of joint movement. Myalgia is typically delayed in onset. The muscle pain from myalgia is more diffuse and slowly waxes and wanes over time. When asked to indicate the location of pain, patients with TMJ pain typically point to a small area in front of the ear, whereas the myalgia patient will place his or her hands over the entire side of the face.

Myalgia is diagnosed by clinical examination. Pain can be provoked by digital palpation of the muscles of mastication. Highly localized hypersensitive spots (trigger points) are typical findings. Patients seek treatment primarily to relieve the pain. NSAIDs and muscle relaxants are usually considered the first line of treatment. Antidepressant therapy is very effective for many of these patients. Splint therapy can also be effective and is the treatment of choice for patients unable to take antidepressant medications. Patients who experience the greatest discomfort upon awakening should use the splint at night; however, patients experiencing the greatest discomfort in the evening should use the splint during the day.

Myalgia, or muscle pain, is a symptom of many diseases and disorders. The most common causes are the overuse or over-stretching of a muscle or group of muscles. Myalgia without a traumatic history is often due to viral infections. Longer-term myalgias may be indicative of a metabolic myopathy, some nutritional deficiencies or chronic fatigue syndrome. The most common causes of myalgia are overuse, injury or strain. However, myalgia can also be caused by diseases, disorders, medications, or as a response to a vaccination. It is also a sign of acute rejection after heart transplant surgery.

Suxamethonium was described as early as 1906 and came into medical use in 1951 [5]. It is on the World Health Organization's List of Essential Medicines, the most effective and safe medicines needed in a health system [6]. Suxamethonium is available as a generic medication [2]. The wholesale cost in the developing world is about 0.45 to 1.31 USD a dose [7]. It may colloquially be referred to as "sux" [5]. Its medical uses are limited to short-term muscle relaxation in anesthesia and intensive care, usually for facilitation of endotracheal intubation. It is perennially popular in emergency medicine because it has the fastest onset and shortest duration of action of all muscle relaxants. The former is a major point of consideration in the context of trauma care, where endotracheal intubation may need to be completed very quickly. The latter means that, should attempts at endotracheal

intubation fail and the person cannot be ventilated, there is a prospect for neuromuscular recovery and the onset of spontaneous breathing before low blood oxygen levels occurs. It is better than rocuronium in making it easy to intubate [8].

Hence based on above literatures and reported study present study was planned out to find out the consequence of oral aspirin in decreasing the frequency of post-operative myalgia triggered by supervision of suxamethonium and to relate it with precurarization (with pancuronium) and with a control group of patients.

Methodology

The study was planned in the Patna Medical College and Hospital undergoing the General Anaesthesia from the period of Jan 2015 to Dec 2015. The age group of the patients is ranges from 20 to 60 years. Total 30 patients were evaluated for the study. As per the classification of the American Society of Anesthesiologists I and II physical conditions were enrolled on to the study. All the patients are informed consents. All the patient's clinical history was collected. The approval of the institutional ethical committee is taken for the planned study. The Patients at particular risk of heart conditions, such as congenital disease, Pregnant/lactating females, Patients on anticoagulant therapy, history of peptic ulceration were excluded from the study.

The patients were divided in the following two groups.The group Ipatients were precurarised by giving injection pancuronium 0.01 mg/kg body weight intravenously three minutes before commencement of induction of anesthesia. The group II patients were administered with soluble aspirin (tablet Disprin) 600 mg orally one hour before induction of the anesthesia.

Patients were induced with injection Thiopentone sodium 4-5mg/kg body wt. I/V followed by injection suxamethonium 1 mg/kg body wt I/V. Anesthesia was maintained with 67% Nitrous Oxide and 33% oxygen supplemented with Halothane and IntrvaenousPentozocine if required. Endotracheal intubation was done. Non-depolarizing muscle relaxant of appropriate duration of action will be employed when contoll ventilation of lungs was required.

Results & Discussion

The aim of the present study was to evaluate the consequence of oral aspirin in decreasing the frequency of post-operative myalgia triggered by supervision of suxamethonium and to relate it with precurarization (with pancuronium) and with a control group of patients. The data from the 60 patients were collected and presented as below.

Table 1: Incidence of fasciculations of suxamethonium in all groups

Group	No fasciculation	Mild fasciculation	Moderate fasciculation	Severe fasciculation	Total Cases
Group I	7	3	--	--	10
Group II	1	6	2	1	10
Control group	1	5	2	2	10
Total	9	14	4	3	30

The group I patients were precurarised by giving injection pancuronium 0.01 mg/kg body weight intravenously three minutes before commencement of induction of anaesthesia. This group of patients showed 7 cases without fasciculation, 3 cases of mild fasciculation. The group II patients were administered with soluble aspirin (tablet Disprin) 600 mg orally one hour before induction of the anaesthesia. This group of patients have only one patient without fasciculation. 6 patient's showed mild fasciculation, 2 with moderate fasciculation and 1 case with severe fasciculation. In control group of patients 1 case is observed with no fasciculation, 5 cases with mild fasciculation, 2 cases with moderate and 2 severe cases of fasciculation.

Table 2: Showing Incidence and severity of muscle pain in all groups

Group	Mild Pain	Moderate Pain	Severe Pain	Total Cases
Group I	2	1	--	3
Group II	3	2	--	5
Control Group	4	3	--	7

Suxamethoniumis responsible for a swift and deepreduction but for a small period. The valuable relaxanthas some drawbacks out of which muscle difficulty and pains have been posing a mutualproblematic. Pain is continuouslyfirm to assess because ofsubjective aspects involved.This study is additional exertion to determine the likely practicality of two methods to prevent Suxamethonium muscle pain.

There was high incidence of pain 68% (17 out of 25) in this group which wassimilar as reported by Churchill-Davidson, (66% outpatients); Morris and Dunn, (72% out patients) [10], Mayrhofer, (89%) [11]. The findings of present studywere at variance with those of Hegarty, as 25.6% [12]. The low incidence of muscle pain was because the cases of old age group and greater number of cases did not get up till third post-operative day. Bush and Roth showed the incidence of muscle pains as10%. Those cases were of age group 5-10 years. This low incidence of pain in children is attributed to their rapid circulation reducing the period off asciculation. In most of patients pain was present at more than one site. Commonest sites were back, neck, shoulder, subcostal region and limbs. Muscle painoccurred invariably in more than one site (Churchill Davidson, Hegarty). Lamoreaux and Urback (1959) described chest as the commonest site which wassimilar to our study regarding distribution of musclepain [13]. The results suggested no definite correlation between muscle fasciculation and pain which were similar to finding of other studies.

Conclusion

Hence the data revealed that the Preoperative aspirin 600mg orally 1 hr beforeoperation effectively reduces Suxamethonium induced pain and avoid complications associated with pretreatment with non-depolarising agents.

This is helpful to avoid the side effects arises due to Suxamethonium.

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