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APPLICATION OF BILATERAL P6 ACUPRESSURE WRIST BAND AND POSTOPERATIVE NAUSEA AND VOMITING AFTER LSCS SURGERY

Anaesthesiology

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ABSTRACT

Background: Acupressure at P6 acupoint is non-pharmacological method which can reduce postoperative nausea and vomiting (PONV). The purpose of this study was to investigate the effectiveness of P6 acupressure in patients with known risk factors for PONV. **Methods:** 120 patients of age group 18-40 years, ASA grade II undergoing LSCS under spinal anaesthesia, were enrolled in this prospective, double-blind, randomized controlled trial. Patients were sub divided into two groups: group I and group II, 60 patients in each group. Group I received Psi band and group II received sham band (dummy acupoint stimulation), on bilateral wrists. Ondansetron 4 mg given preoperatively and as an antiemetic prophylaxis. Incidence and severity of postoperative nausea and vomiting, requirement of rescue treatment, additional antiemetic, and patient satisfaction were recorded for 24 h after operation. **Results:** PONV was 20% in group I and 53% in group II which is significantly lower. Rescue treatment and additional antiemetic treatment required in 12(20%) and 3(5%) patients and 25(42%) and 8(13%) patients in group I and II respectively, suggests significant less requirement of both. Severity of PONV was evaluated by NVS score. Mean NVS score was 0.70 in group I and 1.40 in group II which is significantly higher in group II. As far as satisfaction from patient side there was statistically significant difference between both groups. Patient satisfaction score was 2.40 in group I and 1.68 in group II, suggestive of better patient satisfaction ingroup I. **Conclusion:** Acupressure at P6 acupoint can reduce incidence and severity of PONV significantly in high risk patients undergoing LSCS surgery.

KEYWORDS

PONV,LSCS,acupressure,antiemitic,spinal anesthesia,P6acupoint.

INTRODUCTION

Postoperative nausea and vomiting (PONV) is the most frequent side-effect after anaesthesia with overall incidence up to 70-80% in high risk patients with no antiemetics[1] . It results in discomfort to patient, delayed recovery, prolonged hospital stay, increases cost and sometimes serious complications like aspiration pnuemonitis[2,3].Apfel et al constructed scoring system to predict high risk factors for postoperative nausea and vomiting which are female sex, history of motion sickness/postoperative nausea and vomiting, non-smoker,.Other high risk factors are anesthetic factors like administration of inhalational anesthetic agents, abdominal surgeries etc. Nowadays, so many antiemetics are available like 5HT3 antagonists (Ondansetron, granisetron, ramisetron), dopamine antagonists (metoclopramide, domeperidone), antihistamines (cyclizine, promethazine), dexamethasone etc. at many centers multimodal antiemetic strategy is being used combining more than one antiemetic to reduce postoperative nausea and vomiting, improve quality of recovery and patient satisfaction[1] . These antiemetics can cause side effects like drowsiness, dry mouth, fatigue, constipation, tinnitus, muscle spasm, restlessness etc. Many invasive and non-invasive non-pharmacological interventions are being investigated to control postoperative nausea and vomiting which include acupressure at p6 acupoint[fig.1], transcutaneous electrical stimulation (TAES), acupuncture, electro-acupuncture, laser stimulation, capsicum plaster in the patients undergoing surgery[1,5]. Acupressure at p6 acupoint at wrist[fig.2] with wrist band is found to be effective, minimal risk and low-cost adjunctive therapy in reduction of postoperative nausea vomiting especially in patients with high risk factors[1,5,6]. Considering these facts we have decided to conduct this study to evaluate the effectiveness of p6 acupressure application by Psi band on bilateral wrists [fig.2] along with an antiemetic on incidence of PONV versus only an antiemetic.

MATERIALS AND METHODS

After getting approval from Institutional Ethics committee, 120 patients scheduled for lscssurgeries under spinal anaesthesia, in the plan lscs operation lists of gmers Hospital, junagadh were enrolled for the study. Thorough preoperative examination done on the day before surgery. We have included only females, nonsmoker patients, aged between 18-40years, ASA physical status II . Patients with ASA grade III or IV, history of smoking, received acustimulation therapy in past, h/o alcohol or drug abuse, localized skin lesion at P6 acupoint, patients with pacemakers were excluded from the study. Written as well as verbal informed consents were taken from all patients. The patients were divided randomly into two groups: Group I and group II, each group consisting of 60 patients. In patients of group I Psi band applied and in group II sham band (dummy wrist band) applied at p6 acupoint on both wrists, located 2-3 cm proximal to the distal wrist crease between the tendons of the flexor carpi radialis and the Palmaris longus of patients, at least 30 minutes before surgery in the preoperative room. Sham bands are prepared in such a way that they look similar to Psi band externally but do not apply pressure on p6 point. Patients were kept nil by mouth from 10:00 pm on the day before surgery. Standard anaesthesia protocols followed. On the arrival in operation theatre peripheral Intravenous line secured and Adequate preloading done with 500-1000 ml of ringer lactate in all patients in spinal anesthesia .Premedication given with glycopyrrolate 0.2 mg, ranitidine 50 mg, ondansetron 4 mg slow intravenous. All the monitor gadgets ECG, non-invasive blood pressure, SpO2 applied and monitored continuously..after aseptic and antiseptic precaution spinal anesthesia give with 25G BDspinal needle,inj bupivecan heavy 0.5%,volume 2CC.

All patients shifted to post anaesthesia care unit. All patients were observed for presence or absence and severity of PONV for 24 hours. At least one episode of nausea, retching or vomiting during this observation period is considered presence of PONV. Person monitoring patient postoperatively was blinded to the group of patient. Severity of PONV was recorded as per nausea vomiting scale (NVS: 0-no complaints, 1-mild nausea, 2-moderate nausea, 3-frequent vomiting, 4- severe vomiting)[7]. Rescue therapy was given with Inj. Ondansetron 4 mg, when NVS is >1. Additional antiemetic given in the form of Inj. Metoclopramide 10 mg when NVS is >3. At the end point of the study i.e. at 24 hours, severity of nausea and vomiting, requirement of rescue therapy and additional antiemetic administration, patient satisfaction were recorded. Patient satisfaction was assessed using verbal rating scale (1-dissatisfied, 2-satisfied, 3-highly satisfied).

Statistical Analysis

For statistical analysis data was enter in Microsoft excel and analysis done with the help of IBM SPSS Version 21. Data expressed as mean and standard deviation otherwise indicated. Parametric values compared using Student ttest. Non-parametric values were compared with MannWhitney U test. Categorical values compared using x2 test. P value > 0.05 considered statistically significant.sample size count from medcalc software.

RESULTS

A total 120 patients were enrolled for the study and completed the study. Each group consists of 60 patients. All the patients in both groups were females, non-smokers, underwent LSCS(Lower segment

cesarean section)under spinal anaesthesia. So, the type of surgery, type of anaesthesia, anaesthetic drugs, antiemetic prophylaxis were same in both groups. Table I shows patient profile of both groups are almost similar. Other demographic characteristics like age, body weight, height, surgical time, no of patients with history of PONV or motion sickness, ASA grading were not different significantly in both groups as per shown in table 1.

Table 1: Demographic characteristics

Parameter	Group I (N=60)	Group II (N=60)	p value
Age (yrs)	31.2+/-4.95	32.6+/-4.76	0.1170
Body weight(Kg)	63.2+/-4.52	64.2+/-4.62	0.2331
Surgical time(min)	58.4+/-8.64	61.28+/-9.22	0.0801
H/o of PONV or motion sickness	12(20%)	10(17%)	0.6735

ASA=American Society of Anaesthesiologists Data are mean + SD otherwise indicated. Incidence of PONV was 20% in group I and 53% in group II which is significantly lower. Rescue treatment and additional antiemetic treatment required in 12(20%) and 3(5%) patients and 25(42%) and 8(13%) patients in group I and II respectively, suggests significant less requirement of both. Severity of PONV was evaluated by NVS score. Mean NVS score was 0.70 in group I and 1.40 in group II which is significantly higher in group II. As far as satisfaction from patient side there was statistically significant difference between both groups. Patient satisfaction score was 2.40 in group I and 1.68 in group II, suggestive of better patient satisfaction in group I(Table 2).

Table 2

	Group I (N=60)	Group II (N=60)	pvalue (<0.05significant)
Incidence of PONV	20(33%)	32(53%)	0.0276
NVS score	0.70+/-1.18	1.40+/-1.53	0.0059
Rescue treatment	12(20%)	25(42%)	0.0095
Additional antiemetic	3(5%)	8(13%)	0.1273
Patient satisfaction score	2.40+/-0.67	1.68+/-0.66	0.0001

Figure 1

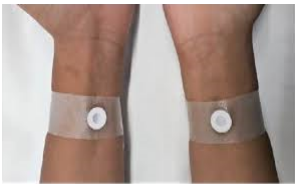

Figure 2

DISCUSSION

Despite the availability of so many newer antiemetics and use of single or in combination targeting different site of actions, PONV is still most common complication of anaesthesia and question of major concern for anesthesiologists[1] . If not treated adequately it interferes with patient comfort and early discharge especially in day care surgeries and sometimes may lead to serious complications like electrolyte imbalance, dehydration, aspiration pnuemonitis [2,3,7]. Several studies demonstrated effectiveness of P6 acustimulation in reducing PONV and improving overall patient satisfaction[1,5,6,8].In addition to reducing PONV, acustimulation has other advantages like it produces sedation, reduces anxiety and reduces severity of postoperative pain9 .Acustimulation can be provided by acupuncture, acupressure or transcutaneous electrical stimulation (TES)[10,11,12,13]. It has been demonstrated in various studies that there no difference in outcome by using any method of stimulation [10,11,12,13,14]. Acupuncture and TES are associated with complications like skin irritation, redness, blistering, pain, bleeding, bruising etc[5] . Acupressure is effective, has minimal side effects and costeffective method. Mechanism of action of acustimulation is not known but suggested explanation is that acupressure leads to sense of relaxation. Anxiolysis in operative patients leads to reduction in PONV[15].We have used Psi bands pronounced as “sigh band” for acustimulation which are readily available commercially, for relief of nausea due to morning sickness from pregnancy, motion sickness, chemotherapy and anesthesia. It applies 5-7 psi continuous pressure on P6 acupoint. These are drug free, reusable, cheap, adjustable and comfortable. In our study, all the patients in both groups,were comparable with respect to age, sex, body weight, ASA group, type and duration of surgery and anaesthesia. These factors may influence the outcome of the study. We have selected the patients which are high risk for occurrence of PONV as it is stated by the investigators that acustimulation reduces PONV in patients with three or more risk factors are present[8] . All the patients were females and non-smoker and . These all factors are risk factors for prediction of PONV according to Apfel score[4]. Surgery carried out under spinal anaesthesia and same anaesthetic drugs used in all patients. Thus, we could show from the results of our study that acupressure at p6 acupoint for 24 hours is effective in reducing early as well as late PONV. It reduces incidence, severity, total number of episodes, requirement of rescue treatment and additional antiemetic. Patient satisfaction and comfort is significantly better in acupressure group. Other investigators supported our hypothesis in their study[1,3,5,8] . Nilsson et al observed that there is no significant effect from P6 acupressure on postoperative nausea or vomiting in patients undergoing craniotomy[17]. This result may be due to they applied band unilaterally. There are some limitations in our study. We have not studied incidence of nausea and vomiting separately. No prestudy power analysis done. So further studies are required to evaluate the effectiveness of acupressure on postoperative nausea and vomiting separately, effectiveness in other surgeries and anaesthesia and also cost effectiveness.

CONCLUSION

In conclusion, p6 acupressure application for 24 hours can reduce incidence and severity of PONV in LSCS surgery in patients with risk factors for PONV and also improves patient satisfaction, when used as an adjunct to antiemetic prophylaxis.

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