Implementation of Nursing Research at the Bedside

Use of Acupressure for Prevention of Post-Operative Nausea & Vomiting in High-Risk Surgical Patients

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Primary Investigator

Facts

- 79 Million surgeries in US annually
- 60% occur in ambulatory day surgery setting
- Females comprised higher visit rates 132 per 1000
- Males 100 per 1000 population

Prevalence & Risk for PONV

- Overall range 25-30%
- High Risk Patients: 70-80%
- Outpatient range: 20-80% depending on population
- 35-67% may experience PONV
- PONV may persist for 5 days postoperative

PONV: #1 Patient Problem

Postoperative Outcomes Least Preferred by Patients

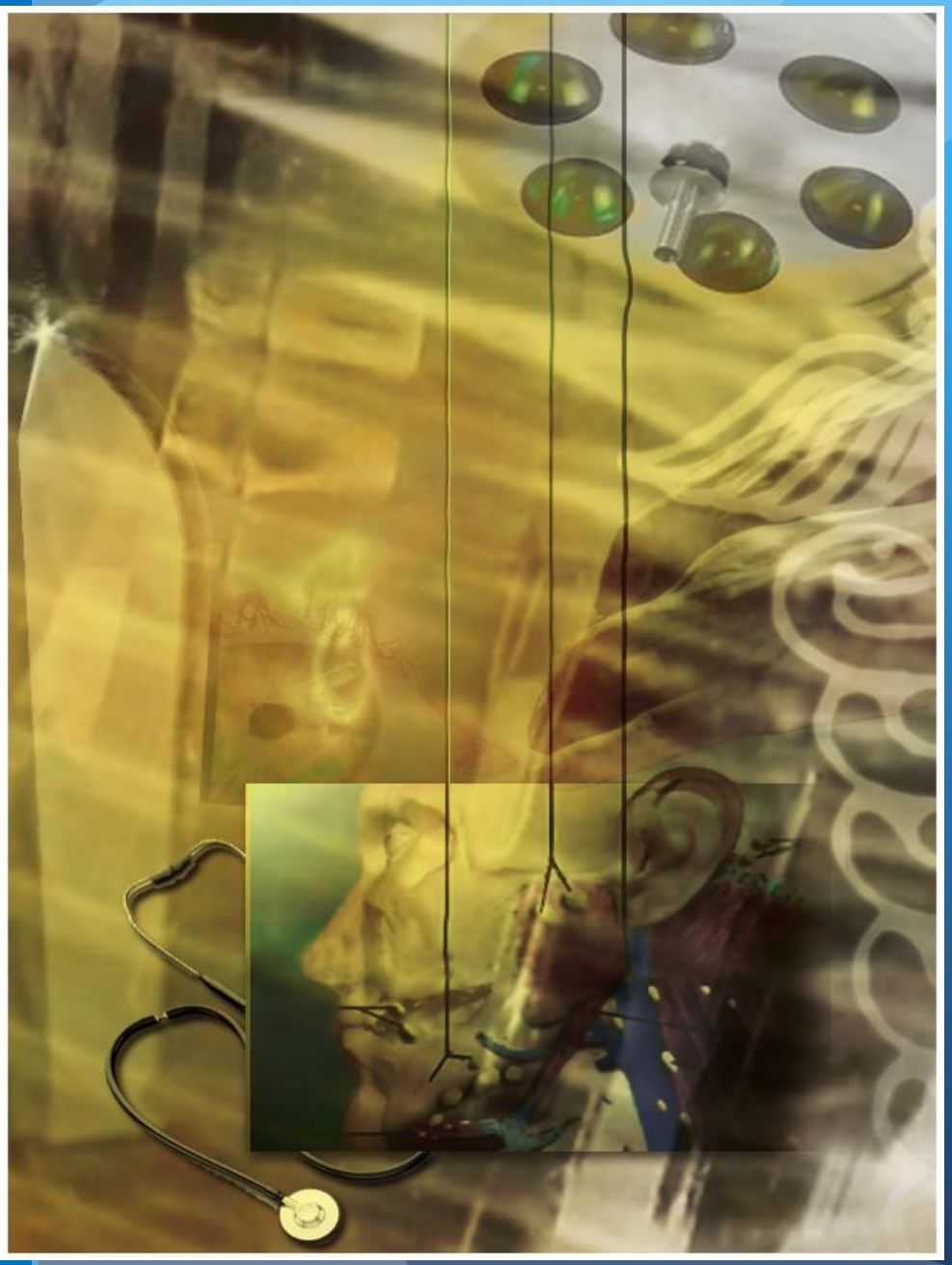
Rank	Postoperative Outcomes Least Preferred by Patients
1	Vomiting
2	Gagging on endotracheal tube
3	Incisional pain
4	Nausea
5	Recall without pain
6	Residual weakness
7	Shivering
8	Sore throat
9	Somnolence

Potential Consequences of PONV

- Electrolyte imbalance & dehydration
- Tension on suture line
- Dehiscence
- Venous hypertension
- Risk of aspiration
- Hematomas
- Delayed discharge
- Unanticipated hospital admission

PONV Cost

- Leading cause of unanticipated hospital admissions
  Of these admissions 24% PONV primary reason
- Costs estimate = 1.2 billion dollars annually
- Single episode of nausea costs average $82
- Single episode of emesis costs average $305
- PONV is major factor limiting early discharge
- PACU personnel costs are biggest component!
  NOT pharmaceuticals



The Study

Literature Review

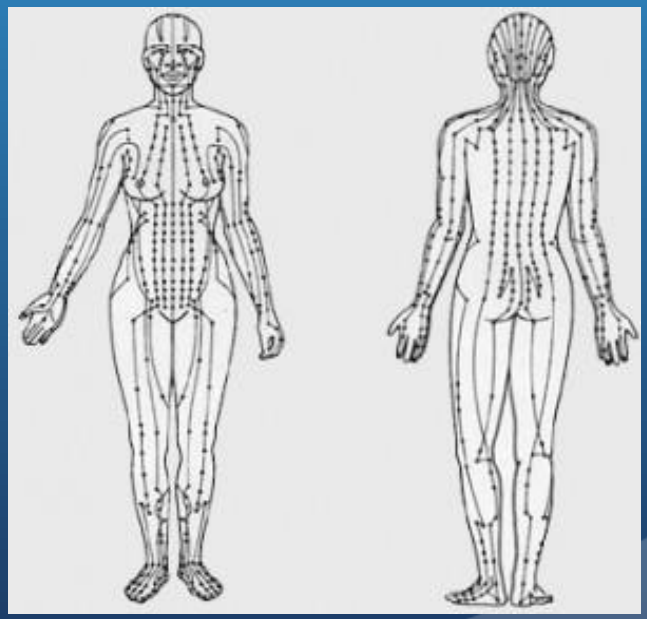
Literature Search Results

- Level of Evidence Strength I Grade A
- 3 meta-analysis Cochrane review
- 10 Randomized Blinded Control Studies

- All significant for use of acupressure
- Most population specific: Gyn,lap chole
- NONE high-risk PONV ambulatory surgical patients
- NO nursing research conducted

Acupressure Efficacy

- Meridian theory based on Chinese Medicine
- Noninvasive approach preventing PONV comparable antiemetic efficacy to more invasive treatments e.g.acupuncture or medications
- Fewer side effects
- Lower cost
- Easy to administer
- No infection risk
- Minor risk of skin irritation, metal allergy



Research Questions:

1. Does preoperative placement of acupressure beads at P6 affect the incidence and severity of PONV immediately post surgery (Phase I) in high-risk ambulatory surgical patients, compared to usual care of preventative and rescue anti-emetics?

2. Does preoperative placement of acupressure beads at P6 worn for 24 hours after surgery affect the incidence of PONV at postoperative phases II, and III in high-risk ambulatory surgical patients, compared to usual care of preventative and rescue anti-emetics?

Study Design

- Experimental
- Randomized
- Controlled
- Blinded

Intervention Acupressure Bead Patch
Control Bandaid Sham Patch

IRB approved
All patients fully consented

Inclusion Criteria

Based on ASPAN Guidelines for at Risk PONV/PDNV

- Female
- Previous history nausea and vomiting or motion sickness
- Non-smokers
- General anesthesia
- Same day surgery
- No nausea/vomiting in past 24 hours

Each risk factor increases 10% chance of PONV
Patient with 4 risk factor has an 80% increase in incidence

Exclusion

- Minors
- Vulnerable populations
- Non-English speaking
- Surgery involving upper extremity e.g.AV fistula, mastectomy, restricted use

Location

P6 Neiguan is 3 finger widths from transverse crease of wrist between palmaris longus & flexor carpi radialis tendons

Methods

- Elective ambulatory surgical patients included in randomized, placebo-controlled & blinded study
- Pre-study randomization table used in setting up charts labeled 1-110 with either acupressure patch or sham patch – blinded to patient, family, intraop, anesthesia providers & postop RN's collecting data PONV scores
- One group received unilateral P6 acupressure patch placed preoperatively (N=57)
- One group received unilateral sham patch placed preoperatively (N=53)
- Nausea & vomiting (scale 0–10) with the treatment were recorded in Phase I, II and III
- Patients recruited by Pre Anesthesia Resource Nurses
- Consented in DSP- Bead or sham band aid applied
- Data collected by PACU, DSP nurses Phase I & II with Phase III per Primary Researcher

Instrument
Patients Rated PONV in Phase I, II and III

Nausea & Vomiting Visual Analog Scale

(Adapted from Wong-Baker FACES Pain Rating Scale, 2005)

0-1	2-3	4-5	6-7	8-9	10
No nausea	Slight nausea queasiness	Moderate nausea (comes & goes)	Moderate to severe nausea (increasing intensity to constant)	Severe nausea retching and/or vomits once	Most Severe Vomiting >once, retching miserable

From Hockenberry MJ, Wilson D, Winkelstein ML: Wong's Essentials of Pediatric Nursing, ed. 7, St. Louis, 2005, p. 1259.
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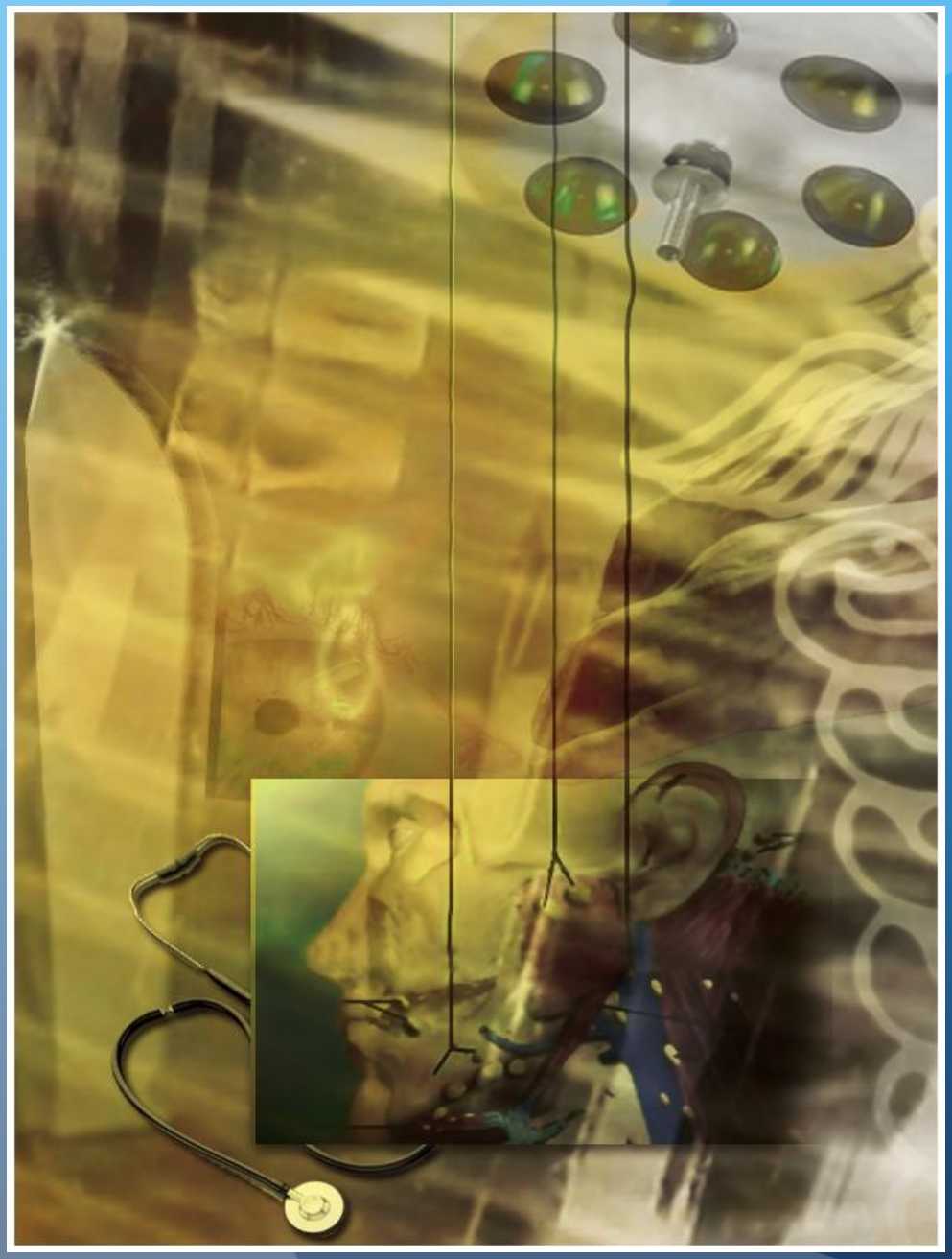
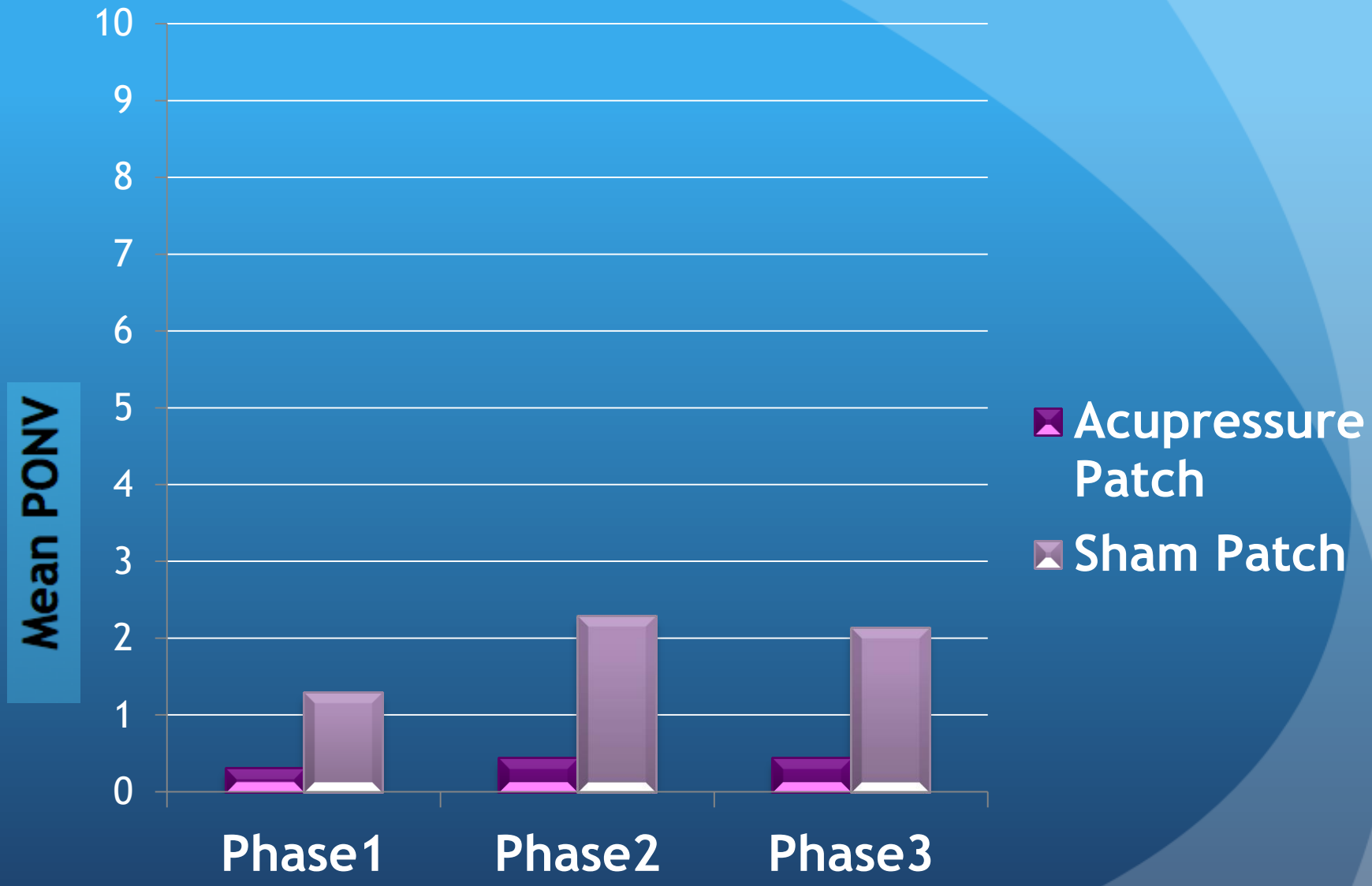


Results

Demographics & Sample

- Coming for elective outpatient surgery
- 110 participants
- 105 women (95.4%)
- 5 men (4.6%)
- Mean age 46.6 years (SD=14.0)
- Range 18 to 89 years
- 93 completed study (all 3 phases)
- 13 admitted to hospital from PACU
- 4 cases dropped out or didn't meet
- Surgeries wide range: including lap chole, gyn, EENT, appendectomy,

Results


Mean PONV
10
9
8
7
6
5
4
3
2
1
0
Phase1
Phase2
Phase3
Acupressure Patch
Sham Patch

One-Way ANOVA

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
phase1_1	Between Groups	22.142	1	22.142	6.594	.012
	Within Groups	305.557	91	3.358		
	Total	327.699	92			
phase2_1	Between Groups	79.610	1	79.610	18.338	.000
	Within Groups	395.057	91	4.341		
	Total	474.667	92			
phase3_1	Between Groups	66.794	1	66.794	9.113	.003
	Within Groups	667.012	91	7.330		
	Total	733.806	92			

Discussion -Limitations

- Focus only on high-risk PONV/PDNV patient population
- Not generalizable to general population
- Visual Analog Scale (VAS) not tested for reliability
- More females than male
- One hospital in Midwestern state – lack of diversity

Recommendations

- Conduct using other acupressure points
- Implement acupressure project in Spring 2013
- Current national drug shortage beckons alternatives
- Implement PONV risk factor assessment as routine
- Nurses should be utilizing acupressure as CAM intervention

Implementation of Research

- Policy
- Education in Practice Change
- Electronic Medical Record
- Assessment
- Use
- Evaluation of Effectiveness for Patients

Next Step Research

1) Develop a cost-effectiveness analysis (CEA) outcome evaluation study of the use of acupressure to prevent post-operative nausea and vomiting.

2) Conduct secondary qualitative analysis with interviews of perioperative nurses about their experience in utilization of acupressure for PONV.

Research question(s)

1) Does the use of acupressure for PONV in surgical patients provide a cost benefit?
2) What is nursing experience in using acupressure as intervention for PONV?

Questions ???

References available by request