Assessment and Management of the Opioid Tolerant Patient During the Perioperative Period

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Advisor: Manuel Tolosa, CRNA, DNAP. Mentor: Elizabeth Hausaman, CRNA
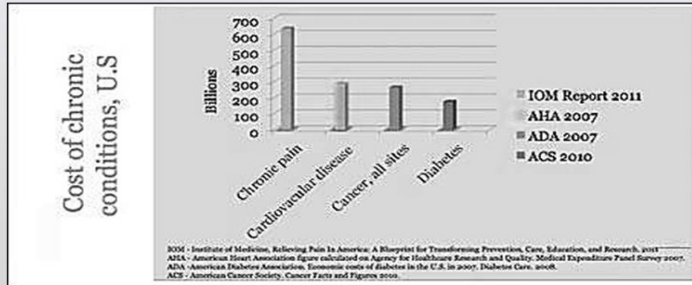### Adventist University of Health Sciences, Nurse Anesthesia Department

Introduction

Challenges:
- Under medication → ↓patient satisfaction with pain control, long-term disability, and delayed mobilization
- Overmedication → postop respiratory insufficiency with prolonged ventilator dependence
- Opioid-induced hyperalgesia (OIH),

Lack of pain control = Leading cause of emergency room visits after surgery

http://www.chronicpainperspectives.com

Purpose of Project

Goal: To provide tools for SRNAs to use in the care of patients with chronic pain. Tools:
- In-depth preoperative pain assessment,
- A thorough understanding of the pathophysiology of chronic pain
- Dosing and regimens of analgesic adjuncts to be utilized concomitantly with opioids,
- The use of equi-analgesic opioid dosing to plan appropriate interventions to improve the future health of their patients.
- Case scenarios were discussed to emphasize multimodal analgesia techniques to reduce the negative side effects of a pure opioid analgesia technique.

Population: Junior SRNAs at Adventist University of Health Sciences (ADU) in the fall of 2014.

Independent treatment variable: Presentation of a lecture.

Dependent variable: Post lecture quizzes to evaluate the effectiveness of the lecture presented.

Data analysis: The difference between pre and post lecture quiz scores.

The anticipated outcome: The post lecture quiz scores would be significantly higher than pre lecture quiz scores.

Case Studies

Case Study #1

56 year old male
- History: Chronic low back pain
- Surgery: Cystoscopy (6 minute procedure)
- Best pain level 5:10
- Pain level in pre op = 7:10

Medication: Takes 6 Percocet daily for over 6 weeks
- 30 mg of oxycodone
- Reduction of 25% due to cross tolerance → 1.69 mg of Dilaudid

Treatment:
- Dilaudid 2 mg IV in pre op
- Ofirmev was not given (OP)
- Dilaudid 4 mg IV intraoperatively

Step 1: Oxycodone (Oral)
Step 2: 30 (Enter total daily dose in mg)
Incomplete cross-tolerance correction
Step 3: Reduction for incomplete cross tolerance: 25 % (Usual range: 25 - 75% reduction)
Converting To:
Step 4: Hydromorphone (IV/IM/SC)
Calculate the equivalent dose Reset
→ Results
Based on your selections above, here is the result:
Equivalent dose for opiate selected in Step 4 above: 1.69 mg
Reduction for incomplete cross tolerance: 25 %
www.globalrph.com/narcotic.cgi

Case Study #2

44 year old male
- History: Reflex Sympathetic Dystrophy (RSD), Hypertension, Anxiety
- Surgery: Cervical Laminectomy
- Home Medications: Hydromorphone, Flexeril, Lisinopril, Trazodone, Temazepam,
- Uses neuro-stimulator for right arm pain secondary to lymphedema.

Treatment:
- Induction: Sufentanil 25 mcg IV = 5 ml(80 kg)
- Sufentanil infusion: 0.25 mcg/kg/min
- Orphenadrine 60 mg IV & Ofirmev 1 gm administered
- Sufentanil infusion discontinued at start of closing of incision.
- No long-acting opioid
- Extubated when awake
- VSS in PACU, patient comfortable.
- Neuro-stimulator turned on in PACU.

http://www.thedoctorstv.com/articles/912-one-woman-s-battle-against-chronic-pain

Dosing and Conversion Chart for Opioid Analgesics

Drug	Route	Equianalgesic Dose (mg)	Duration (h)	Plasma Half-Life (h)
Morphine	IM	10	4	2-3.5
Morphine	PO	30	4	4
Codeine	IM	130	4	3
Codeine	PO	300	4	
Oxycodone	IM	-		
Oxycodone	PO	30	3-4	4
Hydromorphone (Dilaudid)	IM	1.5	4	2-3
Hydromorphone (Dilaudid)	PO	7.5	4	
Meperidine	IM	75	3-4	
Meperidine	PO	300	3-4	normeperidine
Methadone	IM	10*	6-8†	12-24
Methadone	PO	20*	6-8†	20-200
Fentanyl	IV	0.1		
Hydrocodone	IM	-		
Hydrocodone	PO	30	3-4	4

www.acpinternist.org/archives/2008/01/extra/pain_charts.pdf

A patient is taking a sustained-release oxycodone 100 mg Q12 hours, but has experienced intolerable sedation. To use an immediate-release opioid agent, hydromorphone. What is the equivalent dose of hydromorphone?

100 mg X 2 = 200 mg

$$\frac{200 \text{ mg oxycodone}}{X \text{ mg hydromorphone}} = \frac{30 \text{ mg equianalgesic dose}}{7.5 \text{ mg equianalgesic dose}}$$

Equianalgesic dose of hydromorphone = 50 mg
Due to incomplete cross-tolerance reduce new drug dose by 25-50%
24 mg/ 6 doses q 24 hours = 4 mg every 4 hours

Outcome

Increase of 5.58696 between pre-and post-lecture assessments.
The obtained t = -9.359 with an associated p of < .0001.
Conclusion = lecture increased the test scores significantly.

Paired Samples Test

	Paired Differences							
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1 PreTest - PostTest	-5.58696	2.86298	.59697	-6.82500	-4.34891	-9.359	22	.000

LikertPre * LikertPost Crosstabulation

			LikertPost		
			Negative	Positive	Total
LikertPre	Negative	Count	1	20	21
		% within LikertPost	4.8%	95.2%	100.0%
		% within LikertPost	100.0%	90.9%	91.3%
	Positive	Count	0	2	2
		% within LikertPre	0.0%	100.0%	100.0%
		% within LikertPost	0.0%	9.1%	8.7%
Total		Count	1	22	23
		% within LikertPre	4.3%	95.7%	100.0%
		% within LikertPost	100.0%	100.0%	100.0%

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PreTest	8.1957	23	2.91446	.60771
	PostTest	13.7826	23	1.83294	.38220

References (See Back)