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Original Research Article

Assessment of Adequacy of Postoperative Analgesia in a Tertiary Care Centre

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Abstract

Background: An unpleasant sensory and emotional experience associated with actual or potentialtissue damage, or described in terms of such damage. Pain as the 5th vital sign, has been proposed by the Joint Commission on Accreditation Of Healthcare Organizations Illustration as depicted in Rene' Descartes Traite de l'homme (Treatise of Man)1664. The proposition of a link between peripheral sensation and the brain was put forth as early as the 17th century, by Rene Descartes. His cartesian model (5) of a hard – wired system suggested that pain is transmitted by very fixed pathways.

Methods: This observational study includes all Gynecology in patients undergoing any open abdominal procedure, with normal mental health and hospitalized for at least 48hrs postoperatively. Our exclusion criteria includes all patients transferred directly to an intensive care unit, those who had emergency procedure or discharged in less than 48hrs.

Conclusion: Assessment of adequacy of current analgesic protocols. According to this audit, the analgesic protocols being followed are inadequate and non-uniform.

Keywords: Mechanoreceptors, Adequcy, Pain Management.

Introduction

An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage Pain as the 5th vital sign, has been proposed by the Joint Commission on Accreditation Of Healthcare Organizations Illustration as depicted in Rene' Descartes Traite de l'homme (Treatise of Man)1664. The proposition of a link between peripheral sensation and the brain was put forth as early as the 17th century, by Rene Descartes. His cartesian model [1] of a hard – wired system suggested that pain is transmitted by very fixed pathways.

The current concept of nociceptive pain follows from the ideas of R. Melzack and P. Wall in the 1960s. C. Woolf and M. Salter enumerated the principle of "pain memory" to explainchronic pain. The history of pain revolves around various lives from the immemorial past, whose subjective experiences with pain defined their very being. I would hereby like to quote a few. The eminent novelist Frances Burney, in 1812, underwent a mastectomy in her drawing room without any anaesthetic. She

has described her agony in letters to her sister as "the most torturing pain", She goes on to say' I needed no injunctions not to restrain my cries. I began a scream that lasted intermittently during the whole time of the incident, & Ialmost marvel that it rings not in my ears still. [2]" According to the European Pain Network, people with chronic pain suffer an average of seven years. The word pain is derived from the greek word Poine, goddess of revenge. According to greek mythology Poine was sent to punish mortal fools who had angered the gods. The excavations in Incan archaeological sites in South America have unearthed hundreds of skulls with small holes in them. The greek physician, father of medicine, Hippocrates prescribed willow leaves to womenin childbirth. Willow trees belong to genus salix, containing the active ingredient of aspirin which is salicylic acid. In ancient Egypt electric eels were fished out of the nile and were laid over the wounds to relieve pain. This practice is not very different from the modern-day modality of TENS; Transcutaneous electrical nerve stimulation. [3] These interesting accounts also reflect one essential aspect of the past, that the patient was and should be treated as a whole. Pain encompasses not only the physical component but also emotional, psychological, psychosocial and of course economic condition of the patient [4] and affects the whole medical infrastructure. Nociception means noci (latin for harm or injury), is the neural response to noxious stimuli. The entity of nociception is not a hard-wired process as depicted by the 17th century scientist and philosopher, Descartes. It involves elements of neuroplasticity that are dynamic with multiple points of modulation. The International Association for the Study of Pain (IASP), has defined neuropathic pain as pain, resulting from disease or damage followed by the dysfunction of the peripheral and central nervous system. This category of pain is found to be difficult to diagnose and treat compared to other etiologies of pain. The plasticity of the nervous system gets modified; central as well asperipheral. This class of drugs have a prime role in management of pain. They act on μ receptors, located centrally and peripherally. Their use is limited either by development of toleranceor associated side-effects. There is no ceiling effect, as far as analgesia is concerned. The side effects are also reduced, but certain pump malfunctions can be disastrous. The PCA device has the following variables which need to be adjusted before initiating treatment. Demand dose (bolus), lockout interval and the background infusion. Recommended demand dose for morphine is 1mg and 40 micrograms for fentanyl. The lockout interval is the safety feature of this pump. The level of analgesia will decrease with too long an interval and side-effects will increase with too short a time by overdose. It is usually kept at 5-10 minutes, depending on the drug formulation being used. The role of background infusion has not found any support in the literature.

Objectives

Assessment of adequacy of current analgesic Protocols. Assessing the need of a pain nurse in our setting. To establish the necessity of a functioning, Acute pain services in Obstetrics & Gynecology Department.

Material and Method

This study is an observational audit, to assess the adequacy of acute pain relief,in our postoperative patients. The proposal was discussed by the research and ethics committee and was approved upon. This observational study included all gynecology in patients undergoing any open abdominal procedure, with normal mental health and hospitalized for at least 48hrs postoperatively. We audited 200 inpatients, ASA grade I-III, with ward followups. Awritten informed consent was duly explained and obtained from all patients on the pre-operative day. There were no modifications done in the pre-

operative medications whatsoever.After the surgery, these patients were followed up for 48hrs, in the ward intermittently. the data collected is mentioned in the data sheet in the Appendix. It broadly involves demographics, ASA grade, pain scores on day1 and 2, medication details and side-effects. This audit was conducted on inpatients in the Gynecology wards admitted formajor surgery. The permission to conduct an audit was obtained from the Department of Obstetrics and Gynecology.

Inclusion Criteria

All obstetrics-gynecology in patients undergoing any open abdominal procedure, with normal mental health and hospitalized for at least 48 hrs postoperatively.

Exclusion Criteria

Our exclusion criteria includes all patients transferred directly to an Intensive Care Unit, those who had Emergency procedure or discharged inless than 48hrs.

The sample size was calculated after a review of various articles related to this audit. It was found that the incidence of moderate to severe pain postoperatively was 40-60%.

Statistical Analysis

The outcome of the audit is derived by using frequency tables. It also estimates valid percent and cumulative percent.

Results

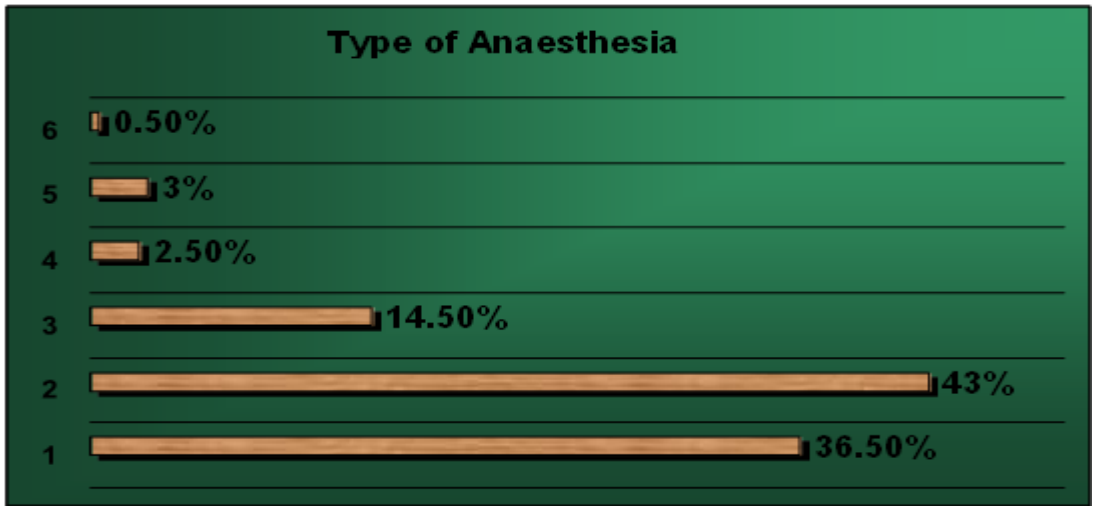
All are female patients with age distribution from 16 – 60 years.

Type of Anaesthesia

1 General Anaesthesia, 2 -Subarachnoid block

3 -General Anaesthesia with Epidural4 -Combined Spinal Epidural

5 -Subarachnoid block converted to General Anaesthesia 6 -Laryngeal Mask Airway with Epidural.



About 39% of patients underwent Total abdominal hysterectomy, with an almost equal distribution among those who had undergone vaginal hysterectomy, lap assisted vaginal hysterectomy and staging laparotomy. while the remaining surgeries were few and varied.

As evident from the graph, Diabetes and Hypertension were more common, closely followed by patients with hypothyroidism and obesity.

DAY 1 Max Pain Scores

		Frequency	Percent	Valid Percent	Cumulativ ePercent
Valid	1	14	7.0	7.0	7.0
	2	52	26.0	26.0	33.0
	3	56	28.0	28.0	61.0
	4	57	28.5	28.5	89.5
	5	14	7.0	7.0	96.5
	6	5	2.5	2.5	99.0
	7	1	.5	.5	99.5
	8	1	.5	.5	100.0
Total		200	100.0	100.0	

There are 67% of patients who had significant pain on Day 1. (Significant pain for this audit is score 3 & >3)

DAY 2 Max Pain Scores

		Frequency	Percent	Valid Percent	Cumulativ ePercent
Valid	1	16	8.0	8.0	8.0
	2	94	47.0	47.0	55.0
	3	43	21.5	21.5	76.5
	4	39	19.5	19.5	96.0
	5	4	2.0	2.0	98.0
	6	4	2.0	2.0	100.0
Total		200	100.0	100.0	

Here constipation closely followed by nausea, were the most common problemsencountered by patients.

Table 1: Percentage of Intramuscular Injections

Medication	Route	Day 1	Day 2
Tramadol	Intramuscular	47.5%	47.5%
Aknil	Intramuscular	15.5%	14.5%
Ketonov	Intramuscular	7%	3%
Phenergan	Intramuscular	45%	47.5%

The trend towards prescribing frequent intramuscular injection is seen fromthese figures.

Table 2:DAY 1 Pain Scores / Analgesic

Pain score	No. of patients	Morphine	Tramadol	Epidural	Morphine & epidural	Tramadol & epidural	Dosifuser
3	55	20	26	3	5	1	-
4	57	25	29	1	1	1	-
5	13	6	5	-	1	-	-
6	5	1	1	2	-	-	1
7	1	1	-	-	-	-	-
8	1	-	1	-	-	-	-
Total	132						

Table 3: DAY 2 Pain Scores / Analgesics

Pain score	No. of patients	Morphine	Tramadol	Epidural	Morphine & epidural	Tramadol & epidural	Dosifuser
3	41	15	18	3	4	-	-
4	39	22	14	1	-	1	-
5	4	3	1	-	-	-	-
6	4	2	2	-	-	-	-
7	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-
Total	88						

The above tabulated data is reflecting the pain scores with the kind of analgesia received. There is no comparison between scores, as it is a subjective entity.

Discussion

This audit was conducted in the Obstetrics and Gynecology Department, of All India Institute of Medical Sciences, Patna. This hospital has 2,695 beds, and caters to 5500 outpatients, 2500 inpatients per day, functioning at a tertiary care level. There is a rapid turnover of patients, who undergo surgical procedures. On an average, 100 surgeries and 25 procedures are performed every day in the 35 operation theatres. A large sum of the hospital revenue depends on the working of the operation theatres. We had set out to do an audit on postoperative patients, to assess the adequacy of their acute pain relief. We wanted to generate a feedback, for all the modalities concerning pain. It is basically a survey to assess our current practices of pain reatment, to lay the groundwork for future modifications. The postoperative orders vary a lot within the multiple units shared by each specialty. For initiating such Audits inall the departments of our hospital, we started with the Obstetrics and Gynecology specialty. We have a functioning Acute Pain Service, but its involvement in the OBG wards is nearly negligible. Our institute and its infrastructure, provides a wide population with all its patients and healthcare professionals, to create a strong self-sufficient pain management cell. There is a need to have such an establishment for the whole hospital torely and fall back upon. A Painometer has been established in all our wards. This is because pain is not assessed like other vital parameters Programmes like training, education, research on newer modalities of pain relief and their implementation, a 24hrs availability of pain specialist to clarify and seek help with managing any patients pain, should form an integral part of this system. An intervention study for improving postoperative pain management by introducing APS was done by Francoise [5] et al, in the University Hospital, Belgium. there was significant improvement noticed in pain scores with P value < 0.001. Every patient is different and same protocols may not work for all patients. Rescue analgesics are mandatory in the face of such diversity, to relieve break-through pain anytime. As Pam McIntyre said “No pain therapy is a one glove fits all therapy, postoperative therapies are only maintenance therapies. The 1997 recommendations by the UK Audit Commission [6], suggest a target with <20% patients in severe pain, to fall to <5% by 2002.What are all these programmes aiming at? The answer is very simple, if you ask a patient in pain;pain-free hours at rest, on movement and a good night’s sleep. The hospitals in developed countries are assessed on the merits of pain relief that they achieve, there are still many barriers to reach such standards in the developing world. There are still those among us who think ‘its all in the mind’.The value of clinical Audit on pain

management was seen in one study done at the University of Wales [7] College of Medicine, where an overall reduction in patients experiencing pain was observed. Another audit covering a vast percentage of patients, conducted in United Kingdom [8], resulted in data suggesting 60% patients with unacceptable pain 24hrs postoperatively. In this study most women underwent hysterectomies, got a PCA and had the highest pain scores. At the Queen Mary Hospital, Hongkong [9], an audit on Chinese patients, found epidural and PCA very effective. The incidence and severity of postoperative pain, especially severe pain was 46.4%, in an audit of surgery clinics in Paris [10]. From 1973-1999, a MEDLINE [6] search and review reveals a significant reduction inmoderate to severe pain;P value <0.001, of 1.9% annually. But the current protocols are inadequate to achieve set recommendations. There is fear of excellent analgesics like morphine, which leads to under prescription and prn orders.India is one of the major exporters of morphine, but the consumption is very low. The concept of Nurse-based, Anesthetist-supervised Acute Pain Service [11]; gains moreimportance as there is a surge in the use of applications like epidurals, PCA, and dosifusres for alleviating pain. These are very patient friendly but need well informed personnel to manage. The introduction of a specialist pain nurse [12,13], enhances the safety profile ofthese sophisticated techniques. Such a network of healthcare professionals with a vision to eradicate pain, would need standardized tools like Audits on a periodic basis. As "Pain knowledge is not to know, but to do;" we need to keep working at progressing on this quest for, bringing about new radical changes. are trying to develop a dedicated unit for pain management. This would consist ofa Section Anaesthesiologist, pain representative from each department; with a meeting every 3 months. The norm "APS not a one man show-definitely a team approach', applieswell. [14] This Audit was done on all female patients from the age group of 16 to 60 years of age. Their categorization into ASA grades was, about 50.5% of ASA grade I, 47% of ASA grade II, and 2.5% were of ASA grade III. About 39% patients underwent Total Abdominal Hysterectony. The type of Anaesthesia mostly used was spinal anaesthesia, in43% patients. The commonly performed surgeries seemed to be Total Abdominal Hysterectomy, Vaginal Hysterectomy, Lap-assisted Vaginal Hysterectomy, and Staging Laparotomy. Among our patients, Co-morbidities like Diabetes, Hypertension, hypothyroidism, and Obesity seemed more prevalent. After analyzing the pain scores, we found that about 67% patients were in significant pain on the first postoperative Day, and 45% on the second postoperative Day. A review of their prescriptions was done, and Tramadol based analgesic protocol was found in 49% doctor order sheets, on first postoperative day and 63% on second postoperative day. These were mostly administered by intramuscular route. Morhine-based treatment was received by 42% patients on the first postoperative day and 41% on second postoperative day. The commonly followed route for Morphine was subcutaneous. Only 15-16% patients had received the benefit of an Epidural. The Epidural infusion was continued for a maximum of 48hrs and discontinued. All the protocols followed were based on a Multimodal approach, but the dosages were inadequate and frequency of administration variable. Several combinations of paracetamol, voveran, proxyvon, ketonov with emeset, phenergan, ranitidine ans pantoprazole were noticed.

Conclusion

Assessment of adequacy of current analgesic protocols. According to this audit, the analgesic protocols being followed are inadequate and non-uniform. Assessing the need of a pain nurse in our setting. Pain management and care are very focused specialities, especially in such a huge set-up.The inclusion of trained pain nurses is

necessary to train other nurses in the ward.

To establish the necessity of a functioning Acute Pain Service in the Obstetrics-Gynecology Department. A dedicated Acute Pain Service will be very beneficial in the Obstetrics and Gynecology Department.

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