Is patients’ verbal expression of pain intensity reliable? A prospective comparison of three methods of pain assessment by patients, nurses, and physicians

Seyedeh Adeleh Mirjafari¹, Hamid Ghaderi²*, Alireza Kazemeini³, Gholamreza Masoumi⁴, Mehran Shahzamani⁵, Sedighe Sadat Naimi⁶, Shahram Rajaei Behbahani⁶

¹Tehran University of Medical Sciences, Tehran, Iran
²Department of Cardiovascular Surgery, Chamran Heart Center Hospital, Isfahan University of Medical Sciences, Isfahan, Iran
³Department of General Surgery, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran
⁴Department of Cardiac Anesthesiology, Chamran Heart Center Hospital, Isfahan University of Medical Sciences, Isfahan, Iran
⁵Department of Physiotherapy, Physiotherapy Research Center, School of Rehabilitation, Shahid Beheshti University of Medical Sciences, Tehran, Iran
⁶Department of Pediatrics, Golestan Hospital, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Abstract

Introduction: Most patients experience moderate to severe pain after a surgical operation, and nurses administer dosages of analgesics lower than needed. There is always a concern that patients describe the level of their pain higher than the actual level, and thus, appropriate action is not taken to relieve patients’ pain.

Objectives: This study was conducted to examine whether patients’ verbal pain intensity is reliable and could be solely relied on to control and follow up pain.

Patients and Methods: This prospective cross-sectional study was performed in 2009-2011 in Imam-Khomeini hospital of Tehran University of Medical Sciences. The assessed patients included all patients who suffered non-complicated anal fistula and underwent elective surgery with spinal anesthesia. The patients’ level of pain was determined separately on the basis of patients’ expression of pain using verbal rating scale (VRS), nurses’ assessment using visual analogue scale (VAS), and physicians’ assessment using face pain scale (FPS), as these three groups were not aware of the assessment results of one another.

Results: In this study, 60 patients with the mean age of 34.87 ± 8.73 years were examined. Female and male patients comprised 19 patients (31.6%) and 41 patients (68.4%), respectively. Pain was measured on the basis of patients’ statement using VRS, nurses’ assessment using VAS, and physicians’ assessment using FPS upon admission in the ward, 2 hours after the admission, in the afternoon of the operation day, in the evening of the operation day, and the morning after the operation. The groups were analyzed using ANOVA. The results of the assessments were similar and showed no significant differences among the assessment methods at different times.

Conclusion: Patients’ verbal pain intensity should be trusted and adequate action should be taken to relieve their pain, as this study revealed that patients’ verbal statement of pain intensity conformed to that assessed by nurses and physicians. Therefore, patients’ verbal statement of pain intensity should not be ignored for social and cultural reasons.

Keywords: Pain, Assessment, Verbal rating scale, Visual analogue scale, Face pain scale


Copyright © 2018 The Author(s); Published by Nickan Research Institute. This is an open-access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Introduction

The acute postoperative pain is one of the worst human experience. It may accompany, hemodynamic and metabolic derangements as well as psychological harms to patients (1-3).

Poor pain management leads to physical and mental stress and patient dissatisfaction with medical cares (4). Several studies have demonstrated that about 80% of patients experience moderate to severe postoperative pain (3-7).

The medical team often fails to take pain relief seriously, and thus most hospitalized patients experience severe pains (8-10).

A study conducted in surgery departments of hospitals across Iran in 1999 showed that 58% of patients...
experienced excruciating pains after surgery, and nurses administered less than sufficient amount of analgesics to them (9), due to several factors, including the belief that patients exaggerate expression of pain, concerns about patients’ addiction to opiates, and fear of side-effects. Various studies have shown that nurses attach the least amount of importance to pain (11,12). Nurse often assess pain according to patients’ self-expression of pain (13). However, there is always the concern that patients might exaggerate their actual level of pain, which leads to inadequate pain relief measures by medical staffs (14,15), which may lead to unprofessional pain management. Sessler et al showed that 35% to 55% of nurses had less than actual estimates of pain level, additionally 64% of patients received no medication before or during painful procedures (16). A standard pain-assessment form should be used for assessing pain (1,2,17). For this propose, various tools have been designed, including Visual Analogue Scale (VAS), Verbal Rating Scale (VRS), and Face Pain Scale (FPS) as the most credible ones (18,19).

**Objectives**

This study was conducted to find whether patient’s VRS, nurse’s VAS and physician’s FPS are match, and whether patient’s expression of pain can be sufficiently relied upon to base pain control and follow-up procedures. Considering the shortcomings in previous published reports, in this study, all patients had undergone the same operation (anal fistula surgery) (as opposed to different orthopedic, abdominal and other surgeries in previous studies), and all surgical procedures were performed by the same surgeon in the same way. Furthermore, all patients received spinal anesthesia and none of them received general anesthesia. Therefore patient’s consciousness and understanding level were not impaired. From the outset, all patients entered this study in succession, leaving no case for missing data.

**Patients and Methods**

This cross-sectional prospective study was conducted between 2009 and 2011 in the surgery ward 3 of Imam Khomeini hospital affiliated to Tehran University of Medical Sciences. During this period, patients that had undergone elective single non-complicated anal fistula surgery with spinal anesthesia were assessed. Sample size was determined according to mean difference and relevant variance from previous similar studies, and 60 patients were selected by convenient sampling method, with no withdrawals. All patients were in class I and II of physical status and aged between 18 and 60 years, and had consented to surgery under spinal anesthesia. Study exclusion criteria included patients with spinal anesthesia contraindication (patient’s non-compliance, infection at injection site and history of coagulation disorders), history of daily use of Nonsteroidal anti-inflammatory drugs (NSAIDs), history of rectum and anus surgery, pregnant or lactating patients, and requiring change from local to general anesthesia. In this study, no inquiry was made about addiction and researchers had no knowledge of patients’ addiction, and sampling was not affected by this.

Patients entered the study by the surgeon. After surgery and transfer of patient to the ward, patient’s pain was separately determined by researchers, the nurse, and the doctor (without knowledge of each other’s assessments) at entry to the ward, 2 hours later, in the afternoon and in the evening of surgery, and the following morning, as follows;
- Severity of pain was determined according to patient’s self-expression and recorded by researchers using VRS (no pain = 0, mild = 1, moderate = 2, and severe = 3).
- Patient’s postoperative pain was assessed by the nurse using VAS (from 0 = no pain to 10 = the severest pain ever experienced by patient).
- Severity of pain was determined by the resident using FPS (for each facial expression from 0 to 10).

A day after the surgery, patients were discharged from hospital if they were qualified to be discharged according to the attending doctor. A questionnaire had been prepared and completed for each patient, and these data were entered into this specifically-designed code sheet. None of the individuals involved were aware of others’ assessments during data collection, but participated in project design, data analysis, interpretation of results and the final report. Patients’ data were obtained through examination and interview and remained totally confidential.

**Ethical issues**

This study was conducted in accordance with the Helsinki Declaration and the checklist of ethics in research. An informed consent form was completed by every participating patient, and written consent was obtained from them after explaining study objectives. When in pain, patients received analgesics, and thus received the best care. Hence, no change was made in their current treatment regimen (currently the best available), and patients did not need to suffer undue pain because of their participation in the study. This paper is part of an M.D thesis by Seyedeh Adeleh Mirjafari (# 21097), approved by the Research Deputy of Tehran University of Medical Sciences.

**Statistical analysis**

The severity of pain was determined and the actual confidence interval (95%) was found for the whole population. ANOVA test was used to compare mean values in groups. Data were analyzed in SPSS-16 (Windows).
and P values of 0.05 or less were considered statistically significant.

**Results**
A total of 60 patients with mean age 34.87±8.71 years ranging from 20 to 60 years took part in the study, of whom, 19 (31.6%) were female and 41 (68.4%) were male. Mean duration of surgery was 13.05±2.507 minutes, ranging from 8 to 20 minutes. Mean time until requiring the first opiate injection was 5.93±3.209 hours, ranging from 0 to 17 hours. Mean dose of opiate used (pethidine) was 6.17±3.836 mg ranging from 0 to 15 mg.

Pain was assessed according to patient's VRS, nurse's VAS and doctor's FPS at entry to ward, two hours later, in the afternoon and in the evening of surgery, and the following morning, as shown in Table 1 and Figure 1. Groups were compared using ANOVA test (P>0.05), and no significant difference was found among pain assessment methods, and three groups produced matching results.

**Discussion**
Despite efforts made over the last three decades to reduce patient's pain, pain still remains a major stressor for hospitalized patients in wards and intensive care units (19). Currently, postoperative pain control is a part of the surgery. Effective management of postoperative pain involves a multi-modal approach (6,7,20). Proper management of pain relies on proper and systematic assessment of pain, which is the first step in the proper assessment of pain severity (21). To ensure an integrated care by medical personnel, the severity of pain and pain control measures and efficacy of these measures should be registered in patient's records and should be available to others involved in patient care (22).

The first step involves the use of an effective pain assessment tool to record patient data and register in patient's record (23). Use of a pain assessment chart has been proposed (21), which should be used to record level of pain assessed (24). Coyne et al have shown that despite nurses’ claim to have registered severity of pain in their reports, examination of records showed very few records containing evidence of assessment of severity pain (no such evidence in 50% to 75% of records) (11,17,24). In a study by Idvall and Ehrenberg, systematic assessment of pain using appropriate tools had been reported in only 10% of cases (25). In a study by Heydari et al nurses only used VRS method, and no one used other pain severity assessment methods (13).

Heydari et al identified that despite being aware of their role in pain relief, nurses did not perform their pain management well, especially in reassessment of pain (13). In the present study, patients were monitored at certain intervals.

In their study, the results obtained from assessment of pain severity according to patient statement using VRS (no pain =0, mild =1, moderate =2, and severe =3), nurse's assessment using VAS (from 0 = no pain to 10 = the severest pain ever experienced by patient), and doctor's assessment using FPS (for each facial expression from 0 to 10) matched. Thus, patient's statement should be trusted and measures to reduce pain should be taken accordingly. Patient's pain should not be ignored or attributed to his over-sensitivity, drug-dependence, or other causes. Unfortunately, other studies have confirmed that pain is not professionally dealt and controlled by medical staffs. They additionally mentioned, postoperative pain is not well-managed, while administration of analgesics or opiates (as the easiest method) is avoided due to the belief that patients may exaggerate expression of pain, and the concerns of patients' addiction to opiates (19,26-28).

The results of present study showed that patient's assessment of pain should be respected, since it agrees with assessments made by nurses and physicians, and therefore pain relief should not be delayed. Two medical problems are manifested here. First, according to a study by Asadi Noghabi et al, making nurses sensitive to pain, enhancing their detecting and controlling powers and training them to use pain assessment tools have not led to their improved performance regarding recording of pain or taking analgesic measures (26), while nurses do not take adequate pain relief measures (14,15). In many circumstances, the authors have observed that nurses do not convey patient's expression of pain to physicians. Perhaps, the suggestion by Winslow (29), Kaiser (30), and Wells et al (31), regarding the assessment of pain as the fifth vital sign and recording it onto patient's vital signs chart could improve the problem. A study by Gallo showed

![Figure 1](https://via.placeholder.com/150)

**Table 1.** Pain assessment using VAS, VRS, and FPS after anal fistula surgery in ward 3 of Imam Khomeini Hospital between 2009 and 2011

<table>
<thead>
<tr>
<th></th>
<th>VAS (0-10)</th>
<th>VRS (0-3)</th>
<th>FPS (0-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>At admission to ward</td>
<td>2.5±0.966</td>
<td>0±0.433</td>
<td>0.13±0.503</td>
</tr>
<tr>
<td>2 hours after surgery</td>
<td>1.3±0.788</td>
<td>1±0.696</td>
<td>1.57±0.981</td>
</tr>
<tr>
<td>In the afternoon</td>
<td>2.48±1.347</td>
<td>2.33±1.16</td>
<td>2.93±1.351</td>
</tr>
<tr>
<td>In the evening</td>
<td>2.82±1.157</td>
<td>2.67±0.914</td>
<td>3.5±1.142</td>
</tr>
<tr>
<td>In the morning after</td>
<td>2.5±0.966</td>
<td>2.45±0.852</td>
<td>2.83±1.122</td>
</tr>
</tbody>
</table>

Abbreviations: VAS, visual analogue scale; VRS, verbal rating scale; FPS, face pain scale.
that inclusion of pain assessment in the intensive care unit chart increased pain assessment report by 33% (32). Second, there are many pain relief methods available, but in our center, like in other centers, opiates are administered as the first line. This has been reported in all other university centers, while opiates are used in nearly all cases (13). There are many reasons for not using other pain relief methods in wards, including inadequate knowledge of opiates, distrust in patient’s expression of pain, lack of pain control guidelines, lack of an organized pain-control team, attaching no importance to postoperative pain control by personnel, absence of payment to those involved, and limited availability of opiates.

**Conclusion**

Failure to assess and record pain leads to a gap between patient and his medical environment. A standard pain assessment form should be used in the assessment of pain. Patient’s expression of pain should be relied upon, and the severity of pain expressed should be trusted, and pain-relief measures should be taken accordingly. This study showed that severity of pain expressed by patient agrees with those assessed by the nurse and the physician.

**Limitations of the study**

This is a single center study with a limited proportion of patients. We suggest larger investigations on this subject.

**Acknowledgments**

The authors wish to thank all personnel of the surgery ward 3 of Imam Khomeini Hospital for their cooperation in this study.

**Authors’ contribution**

AK acted as the head of the surgical team and study supervision. SAM and HG conducted the research and contributed to the conception and design of the research. They also performed drafting of the manuscript, administrative, technical, and material support. SRB handled the analysis and interpretation of data. SSN prepared the primary draft. GM and MS edited the final draft.

**Competing interests**

The authors declare that they have no competing interest.

**Ethical considerations**

Ethical issues (including plagiarism, misconduct, data fabrication, falsification, double publication or submission, redundancy) have been completely observed by the authors.

**Funding/Support**

The authors declare that they have no funding.

**References**