

Views of Emergency Physicians Working in University Hospitals in Turkey Regarding Use of Analgesics in Patients with Acute Abdominal Pain and Factors Affecting Use of Analgesics

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ABSTRACT

Objective: The objective is to investigate factors affecting the frequency and use of analgesics in patients with acute abdominal pain by emergency physicians in Turkey.

Material and Methods: The cross-sectional analytic study was performed between June and September 2006. The population of the study included the attending emergency physicians and residents at university hospitals in Turkey. The surveys were returned by mail after having been filled out by twenty-four departments participating in the study.

Results: Two hundred sixty three of 322 emergency physicians completed the survey (coverage rate: 81.6%). Twenty five percent (n=66) of 263 physicians were emergency medicine specialists. Fifty four percent (n=143) of the participants stated that the use of analgesics "repressed the physical examination findings". Rates in analgesic use also increased in parallel with increases in physicians' ages and were found statistically significant. Moreover, a regional difference among rates of analgesic use was observed ($p<0.05$).

Conclusion: Rates of administering analgesics for patients with acute abdominal pain by university emergency physicians in Turkey are quite low. Physicians' ages, regional location of the hospitals, physical examination findings, radiological examination results, quality and level of pain and received diagnosis are the factors affecting the decision-making process in administering analgesics.

Key Words: Abdominal pain, analgesics, emergency physicians, survey

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Acute abdominal pain is defined as abdominal pain that lasts less than a week; "Acute abdomen" is known as non-traumatic abdominal incidents that require acute surgical intervention (1).

There have been significant changes over the last twenty years in traditional surgical doctrine regarding the belief that patients' symptoms and findings might be repressed, physical examination findings may be altered and some problems may be encountered in patient management in cases of administering analgesics before the final diagnosis for patients with acute abdominal pain. Recent studies have shown that early use of analgesics in patients with acute abdominal pain does not repress physical examination findings, does not cause any delay in the diagnosis and does not result in misdiagnosis. Moreover, the use of analgesics is a reliable and ethical practice for these patients (2-9). Prompted by these studies, recent surgical references, policy, and consensus statements recommend judicious use of analgesia soon after an initial assessment (10). In the literature, it is stated that "the use of opioid analgesics in acute abdominal pain significantly improves patient comfort without compromising treatment decisions (10).

No study concerning medical practice and the factors affecting the decision-making process of emergency physicians at university hospitals in Turkey regarding the use of analgesics for the patients with acute abdominal pain is available. For this reason, the aim of this study is to examine the medical practices, and factors affecting these practices, of emergency physicians at university hospitals in Turkey with regard to the use of analgesics in patients with acute abdominal pain.

Material and Methods

The study is a cross-sectional analytic study. The data was collected between June 2006 and September 2006. The population universe of the study was attending emergency physicians and residents at university hospitals in Turkey. The whole population was targeted and there was no sampling. The study was approved by the Human Subject Research Committee of Ege University Hospital.

Data Collection

The heads of twenty-four emergency medicine departments actively involved in training residents in Turkey, were

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contacted either by phone calls or e-mails in 2006, prior to the process of gathering research data. They were informed about the research and asked for their consent to participate in the study. Heads of departments provided lists and e-mail addresses of emergency medicine specialists and residents employed at their hospitals. Survey forms were subsequently mailed to the heads of departments based on the number of people mentioned on their lists. Surveys were then handed out on the same day as the training days of departments and collected after being filled in by participants. The physicians unable to fill in the surveys (due to being on call at the emergency unit, annual leave or time off following on-call duty etc.) were reached once more either by their cell phones or e-mails and asked to complete the surveys.

The questionnaire, which include demographic features (age, sex, years of expertise as an emergency medicine physician or resident and names of the institutes employing them) included questions such as frequency and timing of administering analgesics in patients with acute abdominal pain, participants' views regarding whether analgesics altered the physical examination findings or not, their reasons for supporting or not supporting the use of analgesics, as well as the factors that may affect the decision-making process in administering analgesics.

The factors and levels affecting the participants' decision concerning the use of analgesics in patients with acute abdominal pain were asked using a 5-point Likert Scale. It was categorized on the scale as "1: I strongly disagree"- "5: I strongly agree." The scale was developed to measure the statements and participants' level of agreement was then regrouped in 8 items. These items and their content were shown in Table 1. The scores were standardized out of 10.

Data was analyzed by a statistical package program. For descriptive analysis; mean, standard deviation and frequency tables were used. For further analysis, Chi-Square and Student's t Test and ANOVA were used. $p<0.05$ was accepted as significant (CI: 95%).

Results

Sociodemographic Data

Two hundred sixty three of a total 322 emergency physicians were planned to be included to fill-in the questionnaire in the study (coverage rate: 81.6%). Twenty five percent of 263 (n=66) physicians were emergency medicine specialists and 75% (n=197) were emergency medicine residents. While the mean of expertise for the specialists was 43.50 ± 33.05 (1-185) months, the mean residency time for the residents was 23.04 ± 15.02 (1-58) months. Their mean expertise time as medical physicians was 6.8 ± 3.7 (1-22) years. The sociodemographic characteristics of the study group were shown in Table 2.

Features of the Use of Analgesics

Fifty four percent (n=143) of the participants stated that the use of analgesics "repressed the physical examination findings", 38% (n=98) said it "did not affect the findings" and 8% (n=22) said it "clarified the findings". Participants' answers to the question "If you are administering analgesics in

patients with acute abdominal pain, when do you administer it?" were shown in Table 3. It was observed that 32% (n=83) of the physicians administered analgesics "independent of the surgery consultant"; and 58% (n=170) "together with the surgery consultant". When the responses of emergency physicians for the questions aimed to explore "the factors affecting the decisions in administering analgesics before the patient is examined by a surgeon" were assessed, it was seen that the reasons for administration were listed as "the level of pain the patient underwent" (55.5%), "the time passing until the examination of the surgery consultant" (46.8%), and "the concern that the use of analgesics would alter the physical examination (45.2%). "The concern for the finalized diagnosis of the patient" (42.2%), "the concern about the likelihood of a disagreement with the surgeon consultant" (24.3%) and "the concern for the complications of the administered drug" (15.2%) followed the above reasons. The responses for the other survey questions were shown in Table 4, 5.

The participants stated that they used narcotic analgesics most frequently. Fentanyl was reported to be the most preferred (37%), and meperidine (33%), spasmolytics (32%), morphine (26%), non-steroidal anti-inflammatory drugs (23%), tramadol (10%) and paracetamol (8%) followed respectively.

The age distribution of the physicians who reported use of analgesics "independent of the surgery consultant" was determined to be 55.9% in the 35-39 age group, 34.3% in the 24-29 age group and 30.9% in the 30-34 age group. The differences between the three age groups were statistically significant (Chi Square: 10.45; p=0.015).

No statistical significance was observed ($p>0.05$) between the average expertise time as medical physicians, specialists and residents, and regarding how often and when analgesics were administered, the effects of analgesic use on the examination, the physicians' views concerning the use of analgesics before the surgeon examines the patient and before the final diagnosis is made, and negative experiences of physicians regarding the use of analgesics.

The mean of the standardized scores for the physical examination, laboratory, age, social level, sex, quality-level of the pain, diagnosis and radiology groups of the participants who used analgesics frequently independently of the surgeon consultant and believed that it was proper to use analgesics even before the surgeon examined the patient and before the final diagnosis was made, were found high in all groups ($p<0.05$). The features of the analgesic administration depending on the geographic region of the physicians were shown in Table 6.

Discussion

In the literature, studies have assessed the factors that are effective in the decision-making process regarding how to deal with the pain of the patients regarding their ages, sexes, languages, cultural and ethnical differences, moral values, life styles and habits (11-17). In addition to these factors, this study also investigates whether the physical examination, laboratory findings, the quality and severity of the pain, and the final diagnosis have an effect on the decisions of the physicians to administer analgesics, and examines the physicians'

Table 1. Factors and their levels of impact on the decisions of emergency physicians regarding the use of analgesics in patients with acute abdominal pain

| | Disagree % | Neutral % | Agree % |
|---|------------|-----------|---------|
| 1. Age Features | | | |
| I use analgesics when the patient is young | 61.6 | 14.1 | 24.3 |
| I use analgesics when the patient is old | 67.3 | 15.6 | 17.1 |
| 2. Sex | | | |
| I use analgesics when the patient is male | 65.4 | 13.3 | 21.3 |
| I use analgesics when the patient is female | 65.8 | 13.7 | 20.5 |
| 3. Socio-Cultural Level | | | |
| I use analgesics if the patient is of a high socio-cultural level | 58.6 | 12.2 | 29.3 |
| I use analgesics if the patient is of a low socio-cultural level | 67.3 | 15.6 | 17.1 |
| 4. Pain Features | | | |
| I use analgesics if the pain is colic | 25.5 | 14.4 | 60.1 |
| I use analgesics if the patient was previously admitted to ED with similar pain histories quite often | 32.3 | 23.6 | 44.1 |
| I use analgesics if the pain is strong | 38.8 | 17.5 | 43.7 |
| I use analgesics if the pain is obtuse | 51.7 | 23.2 | 25.1 |
| I use analgesics if the pain is tolerable | 64.6 | 19.0 | 16.3 |
| 5. Physical Examination | | | |
| I use analgesics if abdominal examination findings are normal | 22.4 | 15.6 | 62.0 |
| I use analgesics only if there is a sensitivity in upper left quadrant | 42.6 | 18.6 | 38.8 |
| I use analgesics only if there is a sensitivity in upper right quadrant | 48.7 | 17.1 | 34.2 |
| I use analgesics only if there is a sensitivity in lower left quadrant | 47.1 | 20.2 | 32.7 |
| I use analgesics if there is defense or rebound in the examination | 57.8 | 16.0 | 26.2 |
| I use analgesics only if there is a sensitivity in lower right quadrant | 63.5 | 16.0 | 20.5 |
| I use analgesics only if there is a sensitivity in periumbilical region | 55.5 | 21.3 | 23.2 |
| I use analgesics if the patient does not have fever | 62.7 | 15.2 | 22.1 |
| I use analgesics if the patient has fever | 61.2 | 19.8 | 18.6 |
| 6. Laboratory Findings | | | |
| I use analgesics if no leucocytosis exists with the pain | 55.5 | 17.5 | 27.0 |
| I use analgesics if there is leucocytosis with the pain | 63.1 | 18.3 | 18.6 |
| 7. Radiological Findings | | | |
| I use analgesics if the patient has a normal abdominal tomography | 29.3 | 20.9 | 49.8 |
| I use analgesics if the patient has a normal abdominal ultrasound | 42.6 | 24.0 | 33.5 |
| I use analgesics if the patient has a normal upright abdominal graphy | 61.6 | 20.2 | 18.3 |
| 8. Attitudes in Diagnosis | | | |
| I use analgesics if the diagnosis is finalized | 6.1 | 7.2 | 86.7 |
| I use analgesics if the patient is diagnosed with acute cholecystitis | 9.5 | 8.7 | 81.7 |
| I use analgesics if the patient is diagnosed with acute pancreatitis | 9.9 | 8.7 | 81.4 |
| I use analgesics if the patient is diagnosed with acute appendicitis | 19.0 | 9.1 | 71.9 |
| I use analgesics if the patient is diagnosed with acute gastroenteritis | 17.5 | 13.7 | 68.8 |
| I use analgesics if the patient is diagnosed with acute mesenteric ischemia | 17.1 | 16.7 | 66.2 |
| I use analgesics if the patient is diagnosed with ileus | 31.9 | 17.5 | 50.6 |
| I use analgesics if the diagnosis is not clear | 58.9 | 18.6 | 22.1 |

Table 2. The sociodemographic characteristics of the study group

| | Residents | | Specialist | | Total | |
|---------------------|-----------|-------|------------|-------|-------|-------|
| | n | % | n | % | n | % |
| Age Groups | | | | | | |
| 24-29 yrs | 97 | 49.0 | 8 | 12.1 | 105 | 39.7 |
| 30-34 yrs | 82 | 41.8 | 26 | 39.4 | 108 | 41.2 |
| 35-39 yrs | 15 | 7.7 | 28 | 42.4 | 43 | 16.4 |
| >40 yrs | 3 | 1.5 | 4 | 6.1 | 7 | 2.7 |
| Gender | | | | | | |
| Female | 58 | 29.1 | 18 | 27.3 | 76 | 28.6 |
| Male | 139 | 70.9 | 48 | 72.7 | 187 | 71.4 |
| Regions | | | | | | |
| Mediterranean | 27 | 13.8 | 18 | 27.3 | 45 | 17.2 |
| Aegean | 38 | 18.9 | 18 | 27.3 | 56 | 21.0 |
| Marmara | 23 | 11.7 | 7 | 10.6 | 30 | 11.5 |
| Black Sea | 21 | 10.7 | 2 | 3.0 | 23 | 8.8 |
| Central Anatolia | 41 | 20.9 | 10 | 15.2 | 51 | 19.5 |
| East Anatolia | 16 | 8.2 | 3 | 4.5 | 19 | 7.3 |
| South East Anatolia | 31 | 15.8 | 8 | 12.1 | 39 | 14.9 |
| Total | 197 | 100.0 | 66 | 100.0 | 263 | 100.0 |

Table 3. Time of administering analgesics by participants who had stated they administered analgesics to their patients with acute abdominal pain

| Time of administering analgesics | n | % |
|---|-----|-----|
| "I administer analgesics after I examine the patient and plan the management" | 83 | 35 |
| "After diagnosis for the patient is finalized" | 55 | 23 |
| "After eliminating any sickness that may require surgical intervention" | 49 | 21 |
| "After the surgeon consultant examines the patient" | 35 | 15 |
| "Only if the patient is undergoing surgery" | 14 | 6 |
| Total | 236 | 100 |

Table 4. Participants' responses to the questionnaire

| Questionnaire | Never % | Rarely % | Sometimes % | Often % | Always % |
|---|---------|----------|-------------|---------|----------|
| "How often do you use analgesics in patients with acute abdominal pain?" | 15 | 27 | 31 | 21 | 6 |
| "How often do your patients with acute abdominal pain demand analgesics for their pain relief?" | 3 | 3 | 5 | 44 | 45 |
| "Do you think that you manage pain control of your patients with acute abdominal pain sufficiently?" | 3 | 17 | 39 | 39 | 1 |
| "Do you think that you intervene late in pain control of your patients with acute abdominal pain?" | 4 | 18 | 45 | 30 | 3 |
| "How often does your surgery consultant physician in the ED suggest the use of analgesics in patients with acute abdominal pain?" | 48 | 39 | 11 | 2 | 1 |

reasons for supporting or not supporting the use of analgesics in patients. As physicians become older, the rates of use of analgesics increase and there are regional differences between the rates in administering analgesics. The participation rate in our study is remarkably high compared to participation rates in similar studies in the literature (11-14).

In this study, 38% of emergency physicians believe that the use of analgesics in patients with acute abdominal pain does not affect physical examination findings. This rate is quite low compared to the study conducted by Wolfe et al., which recorded a rate of 85% (11). However, 76% of the participants in Wolfe's study stated that they did not administer analgesics before the surgeon examined the patient. That finding is quite similar our study. A survey conducted by the American College of Emergency Physicians Scientific Assembly in 2005 concluded that 97% of the physicians "administered analgesics as soon as they examined the patient". The most frequently administered analgesics were morphine, fentanyl and hydro-morphone (making up 90% of total analgesic use), and neither being a specialist or resident, the age of the physician nor the year of expertise had any effect on the decision in administering analgesics (15). This data may prove that there has been a change in the last decade in the culture of analgesic use since the study conducted by Wolfe et al. in the United States in 1997 (11). This study leads to a different conclusion about the low rates in administering analgesics for emergency physicians, the reasons for such hesitation or fear in administering analgesics and the barriers to use in Turkey.

It was observed that several important barriers may exist in determining the appropriate use of analgesia with acute abdominal pain in Turkey, such as standing tradition, personal experience, and lack of adequate evidence-based data. Due to the relatively small sample sizes of the studies, they were not able to determine the complication rate or difference in clinical outcomes in a meaningful manner (13). On the other hand, recent meta-analysis examining the role of analgesia in evaluating patients with acute abdominal pain found that opioids might change the physical examination result but have a negligible impact on incorrect management decisions (18).

One of the most significant barriers to the use of analgesics is concern for surgical misdiagnosis after patients with ab-

Table 5. Emergency physicians' reasons for 'supporting' and 'not supporting' the use of analgesics in patients with acute abdominal pain

| Your reasons to support the use of analgesics in patients with acute abdominal pain | | % | n |
|--|------------------------|----------|----------|
| It is not an ethical and humanistic | to let patients suffer | 50.2 | 132 |
| The use of analgesics increases not only patient's comfort but also physician's comfort | | 46.8 | 123 |
| The literature supports that it is a reliable practice to use analgesics in patients with acute abdominal pain | | 41.4 | 109 |
| It is 'the patient's right' to ask for relief of his/her pain | | 37.6 | 99 |
| It does not affect physical examination findings | | 34.6 | 91 |
| It accelerates the patient's diagnosis | | 8.4 | 22 |
| Your reasons not to support the use of analgesics in patients with acute abdominal pain | | % | n |
| It represses physical examination findings | | 35.0 | 92 |
| It causes delays in accurate diagnosis of the patient | | 25.5 | 67 |
| The use of analgesics may lead to disagreements with the surgery consultant physician | | 20.2 | 53 |
| The use of analgesics may result in misdiagnosis and, therefore, there may be some legal consequences | | 19.0 | 50 |
| Evidence in the literature is not sufficient to support the reliability of the use of analgesics in patients with acute abdominal pain | | 15.2 | 40 |
| The patient should tolerate the pain until his/her diagnosis is finalized | | 7.6 | 20 |
| I think the use of analgesics is not appropriate since I fear some complications that are likely to emerge depending on the analgesics (eg. opioid analgesics) after their use | | 4.6 | 12 |

Table 6. Features of the physicians on the use of analgesics depending on geographic regions

| Regions | Frequency of Use | | Time of Practice | | Using it before the general surgeon | | Using it before the diagnosis | |
|---------------------|------------------|--------|------------------------------------|-----------------------------------|-------------------------------------|----------|-------------------------------|----------|
| | Often | Others | Independent of the general surgeon | Together with the general surgeon | Proper | Improper | Proper | Improper |
| | | | | | % | % | % | % |
| Mediterranean | 33.3 * | 66.7 | 53.3# | 40.0 | 60.0* | 40.0 | 51.1 ^a | 48.9 |
| Aegean | 45.5 * | 54.5 | 58.2# | 36.4 | 67.3* | 32.7 | 65.5 ^a | 34.5 |
| Marmara | 30.0 | 70.0 | 3.3 | 93.3 | 40.0 | 60.0 | 40.0 | 60.0 |
| Black Sea | 17.4 | 82.6 | 34.8 | 56.5 | 43.5 | 56.5 | 34.8 | 65.2 |
| Central Anatolia | 25.5 | 74.5 | 27.5 | 54.9 | 45.1 | 54.9 | 44.0 | 56.0 |
| East Anatolia | 20.0 | 80.0 | 5.0 | 70.0 | 20.0 | 80.0 | 15.0 | 85.0 |
| South East Anatolia | 0.0 | 100.0 | 7.7 | 82.1 | 35.9 | 64.1 | 20.5 | 79.5 |

*p=0.0001, Chi square: 26.84, #p=0.0001, Chi square: 53.89, *p=0.0020, Chi square: 20.46, ^ap=0.0001, Chi square: 27.76

dominal pain have received analgesia. In a survey of general surgeons conducted in 1999, 56% stated they would never provide analgesia for patients they had not examined. Moreover, 67% of surgeons responded that analgesia would hinder the evaluation and diagnostic accuracy (12). The common finding in other survey studies regarding this particular subject matter is surgeons' preference in not administering any analgesics in patients with acute abdominal pain before the surgical examination (12, 13). Unlike physicians in America, in this study, emergency physicians, similar to the surgeons mentioned above, do not prefer the use of analgesics in patients with acute abdominal pain before the surgical examination.

Administering analgesics to patients may also be delayed in teaching hospitals because of the hierarchical system of most surgical programs. Often a surgical intern and then a junior staff member are sent to evaluate emergency patients before speaking with the surgical senior or the attending physician. These examinations may be quite time consuming. When patients do not receive analgesia in the ED, the first dose of pain medication is delayed at an average of 5.7 hours. This delay is often attributed to junior staff hesitation in administering medication due to the concern of possibly masking important symptoms (11).

One of the reasons why emergency physicians make more use of analgesics compared to surgeons may be the patients'

demands for relief. The present study supports this assumption as well. It was determined that the most important factor in administering analgesics by the emergency physicians before the surgeon examined the patients was the level of the patients' pain and the second was the amount of time passing before the examination by the surgery consultant.

Another reason seems to be concern for the possibility of disagreement with the surgery consultant regarding the use of analgesics. In this study, when the participants listed their reasons for not supporting the use of analgesics, 20% of them ranked the "concern about disagreement with the surgeon" third on the scale.

This preliminary study has some limitations. Since most of the questions were attitudinal questions, memory and judgment are not likely to have played a role in how these questions were answered. Other limitations may include the social desirability bias and the central tendency bias of the participants.

In conclusion, the rates of administering analgesics by university emergency physicians in Turkey for patients with acute abdominal pain are quite low. Moreover, the rates of administering analgesics before the diagnosis is finalized are low, and physicians generally decide on administration of analgesics together with general surgeons.

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Conflict of Interest

No conflict of interest was declared by the authors.

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