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Ethnic Variability in the Treatment of Pain

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ABSTRACT

Ethnicity has been shown to be an important determinant of behavior during illness, particularly when a painful condition is present. Studies have shown that pain may be undertreated among different ethnic groups of patients. Whereas individual variations in the reaction to pain occur, available data do not support racial and/or ethnic differences in the perception of pain, leaving no justification for this discrepancy in treatment.

Regardless of ethnicity, inadequate treatment of pain has been known for some time and has been referred to in recent literature as “oligoanalgesia.” Lack of understanding of different ethnic and cultural groups can lead to inaccurate pain assessment and has been

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repeatedly shown to result in suboptimal pain control. Additional research is needed to determine the reasons for discrepancies in pain treatment between ethnic groups. The purpose of the present article is to increase awareness among anesthesiologists about ethnic and cultural issues that may influence their assessment and treatment of pain.

Culture influences the interactions between patients and health care providers. Ethnicity has been shown to be an important determinant of behavior during illness, particularly when a painful condition is present.¹

Numerous clinical studies have compared pain responses and treatments in various cultural groups.²⁻⁴ However, this topic has received little attention in the anesthesiology literature. We present information concerning the influence of ethnicity on the treatment of acute pain and suggest areas in need of improvement when treating a diverse population.

For some time, differences in the interpretation of and reaction to pain in patients of different cultures have been known. Numerous investigations have revealed cultural differences regarding stoicism, expression, beliefs, and attitudes with respect to pain.⁵⁻⁷ Studies show that pain is undertreated in some ethnic groups of patients.^{2,8} Considering that the available data do not support racial and/or ethnic differences in the perception of pain,⁹⁻¹¹ there is no justification for this discrepancy in treatment.

Algesimetry studies use techniques such as electromyography, pupillometry, and heart rate to measure pain objectively.^{3,12-14} However, pain is generally measure subjectively in the clinical arena, making pain-related research particularly challenging. This underscores the importance of effective communication in the patient-physician relationship. Cultural and language barriers affect the evaluation of pain, making it difficult for health care providers to understand and treat patients.

When particular studies are discussed in this paper, the terminology describing race and ethnicity is that used in the original articles.

DEFINITIONS

Pain, as defined by the International Association for the Study of Pain, is “an unpleasant sensory and emotional experience associated with actual or potential tissue damage.”¹⁵

Three terms commonly used by investigators to describe different aspects of the pain experience are pain threshold, pain tolerance, and pain response. These terms are defined as follows: 1) pain threshold is the neurophysiologic detection of pain determined by verbal report; the point when the subject would define the stimuli as painful if asked; 2) pain tolerance refers to a request for cessation or withdrawal from the stimulus; the moment when action is taken by the subject to stop the stimuli; the point at which he or she can no longer withstand the stimuli, and 3) pain response is the subjective feelings

about the pain and the displayed behavior. This broadly includes attitudes, emotions, attentiveness, and physical manifestation during a painful sensation.¹⁶

RELATED RESEARCH

Culturally and ethnically distinct groups interpret and react to pain differently. In 1952, Zborowski⁵ reported that there are differences in the ways Irish, Jewish, and Hispanic patients and American patients of European origin differed in their attitudes and beliefs about pain. He presented general observations concerning these groups and speculated on the influence of ethnicity and culture on an individual's overt expression of his or her physical pains. Whereas this study included only 100 subjects and no modern statistical analysis, it opened the door for discussion on this topic.

The following year, True¹⁷ described how Mojave Indian women avoided expressing their suffering during childbirth for fear of social ridicule. These same women, when questioned, reported experiencing a great deal of labor pain. Meehan and colleagues,⁹ 1 year later, conducted a study of American Indians, Eskimos, and caucasians and found no significant differences in pain tolerance. This work triggered more questions than answers, resulting in additional research.

Kosko and Flaskerud⁷ found significant differences between Mexican Americans and the predominant American cultural groups in Los Angeles as to beliefs regarding chest pain. Larkins¹⁸ details the cultural impact on one woman's experience in the hospital showing

behavior consistent with the stoic denial of pain that McCabe¹⁹ described 17 years earlier for the “Southern Negro.” In another study, older Italian Americans were found to report pain more frequently than Anglo-Americans. This study showed that age and sex mediate ethnic differences. The authors theorized that the effect of Italian ethnicity, which contains a tradition of expressing and dramatizing pain, may be accentuated in older women because their sex has “social permission” to express pain.²⁰ Research on American Indians, Eskimos, and whites showed no significant differences in pain tolerance.⁹ Another study of 75 women from five ethnic groups (black, Italian, Jewish, Irish, and Anglo-Saxon) reported no significant difference in pain perception after vaginal delivery with episiotomy.¹¹ Black and white parturients, matched for demographic parameters, were also found not to differ in pain responses or estimated degrees of pain.¹⁰ A study showed that the Nepalese, when compared with Occidentals, showed higher pain tolerance but no significant differences in threshold for the perception of the pain stimuli.²¹ Pain responses of various ethnic groups within a single racial category may also vary significantly.^{22,23} This confuses the issue when one compares the significance of different studies, especially if there is difficulty in identifying culturally and ethnically specific groups within the same racial category.^{9,20,22,24} In the present article, we have used the terminology describing race and ethnicity that was used in the original studies.

The similarity of the pain experience between different ethnic groups was described by Lipton and Marbach¹ as “interethnic homogeneity.” Their research in a diverse racial and ethnic population showed that there were similar responses to pain among black, Irish,

Italian, Jewish, and Puerto Rican individuals. However, different ethnic and cultural factors influenced the responses for each group. For black patients, it was the degree of medical acculturation; for Irish patients, the degree of social assimilation; for Italian patients, the duration of pain; and for Jews and Puerto Ricans, the level of psychological distress. It was concluded that the differences between groups occurred in the area of expression.

Many studies report differences in the way culturally and ethnically distinct groups react to and express pain, but there is ample data support the fact that there is no difference in the pain threshold.^{9-11,21}

A study on how patients react to chest pain found that twice as many blacks as whites did not seek medical attention after chest pain. This difference could not be accounted for when controlling for demographics, health status, and access to care. It was suggested that this difference was a result of the way blacks and whites interpret and react to chest pain.²⁵ Although stoicism or apathy about pain may cause problems for patients who do not seek medical care, difficulties may also arise for patients already within the health care system.

OLIGOANALGESIA

Regardless of ethnicity, the inadequate treatment of pain has been known for some time and in recent literature as been referred to as “oligoanalgesia.”²⁶⁻²⁹ The inadequate

treatment of pain after trauma and surgery reached such proportions that in 1992, the Department of Health and Human Services issued a clinical practice guideline on acute pain management addressing the problem.³⁰

In a review, Calvillo and Flaskerud⁸ indicate that both physicians and nurses tend to underestimate and undertreat pain. In a study of 78 women, 56% reported intolerable pain of labor but the midwives reported that they did not have painful deliveries.³¹ The differences in pain response, which, as stated, include verbal and physical expression of emotions and opinions about the pain, or a lack of these expressions, by patients from varied cultural backgrounds, have led to undertreatment of pain for some groups compared with the established majority group.^{2,8} This places minority groups at particular risk beyond the already reported oligoanalgesia seen in the general population.

A study using the McGill Pain Questionnaire found no significant differences between Anglo Americans and Mexican-American women for any of the measurements of pain. However, nurses judged the patients' pain to be less than the patients did. Furthermore, nurses evaluated the two ethnic groups' pain responses differently; more pain was assigned to Anglo-American women than to Mexican-American women.³²

Lack of understanding of different ethnic and cultural groups leads to inaccurate pain assessment and has been repeatedly shown to result in suboptimal pain control.^{2,4,32} In Norway, a study showed that women of Pakistani origin were three times as likely not to receive analgesia for labor as Norwegian women.³³ Ng and colleagues⁴ studied the ethnic

differences in analgesic consumption for postoperative pain after the open reduction and internal fixation of limb fractures. They reported that whites received significantly more analgesics than did blacks or Hispanics. These ethnic differences persisted after controlling for confounding factors. Although in their study they could not identify Hispanics who did not speak English, they did not consider this the reason for undertreatment, because blacks also received less analgesia than did whites.

Variance in postcholecystectomy narcotic requirements was investigated in Hawaii. Whereas all groups were notably undertreated for pain, whites and Hawaiians received significantly more analgesics than did Filipinos, Japanese, or Chinese. The authors explain that the postoperative analgesic orders, which were written mostly as PRN (as needed), were remarkably uniform for all patients, regardless of race. In this study, the difference appears to be related to the nurse-patient interaction rather than the doctors' orders. The authors concluded that some cultural styles might be more susceptible to undertreatment than others.³⁴

Ng and colleagues³⁵ postulated that postoperative analgesia with PRN medication orders is dependent on the interaction between the patient and nurses. In addition, it has been difficult to determine whether ethnic differences in the amount of medication received are due to the patient's pain-related behavior or to the staff's perception of the patient's pain. To address this problem, they studied patients treated with patient-controlled analgesia, thus avoiding the interactions with medical staff. They found that patients' ethnicity has a greater impact on the amount of narcotic prescribed by the physician than on the

amount of narcotic self-administered by the patient. In this study, the self-administered narcotics were not significantly different among the various ethnic groups.

DISCUSSION

Pain is one of the primary reasons people seek medical attention.³⁶ To offer individualized optimal service, health care providers must be aware of the cultural differences in the population. Physicians must acknowledge their own cultural and ethnic perspectives when treating patients. They must also recognize that patients may react differently based on the physicians' ethnicity. For instance, pain tolerance markedly increased for Jewish subjects with the presence of a non-Jewish, as compared with a Jewish, investigator.³⁷

Todd and colleagues² reported that Hispanic patients with isolated long-bone fractures were medicated much less than non-Hispanic patients although the lesions were comparable. This study was criticized for not determining the role of the physicians' ethnicity in the treatment of patients with pain³⁸ and for using the term Hispanic to encompass a wide variety of people.³⁹ However, considering that ethnicity is frequently difficult to define,⁴⁰ it is remarkable that self-rated ethnicity can have a significant influence on the treatment of pain by health care personnel.³⁵

Differential treatment of ethnic groups may constitute a subtle prejudice that exists in our society. The stereotypic differences pointed out by Zborowski⁵ in the fifties may have

served, to some extent, to provide justification for this discrepancy. He pointed out that certain ethnic groups tend to exaggerate their pains, whereas others tend to be more stoic. Portrayal of various cultural and ethnic groups in the media may also feed stereotypes and prejudice. Over the next 20 years, there will be large increases in minority populations,⁴¹ making it essential to understand cultural differences. It becomes evident that we must direct our clinical skills to seek clarification when communicating with an ethnically diverse patient population. Stereotyping may exacerbate the problem of oligoanalgesia. Allport⁴² defines stereotyping as “an exaggerated belief associated with a category. It acts as a justificatory device for categorical acceptance or rejection of a group and as a screening or selective device to maintain simplicity in perception and in thinking.” This may occur when patients and practitioners come from different ethnic backgrounds. Under such circumstances, the clinician may resort to a simplistic exaggerated impression of behavior and response expected from a person of that ethnic group. Anecdotal information must be offset with accurate data to allow open-minded evaluation and treatment of people from all cultures. It has been suggested that the answer is not to possess a detailed knowledge of each and every culture, but to be aware of the differences between individuals, and how they might affect one’s practices.¹ Health care personnel must focus both on the pain experience and on its expression in their patients. Cultural variability in the expression of pain must not be a reason for significant discrepancies in treatment.

SUMMARY AND RECOMMENDATIONS

In summary, there are individual variations in the reaction to pain but not in the perception of pain; culture and ethnicity influence the relationship between patient, physician, nurse, and allied health care providers; and multiple studies show that minority populations are at risk for the undertreatment of pain. More research may elucidate issues regarding ethnic variability in the treatment of pain. Nurses frequently have significant discretion in executing PRN analgesic orders; one way of minimizing possible biases is to use patient-controlled analgesia. Additional work is certainly needed to educate health care students and providers regarding manifestations of pain and adequacy of pain treatment among all ethnic groups. Anesthesiologists who are involved in pain management play an important role in the education process at many levels. Finally, physicians and nurses must be aware of their own ethnicity, as well as their patients', and how this interaction may blur the evaluation of pain and its treatment.

AUTHOR'S DISCLOSURE STATEMENT

The authors have no actual or potential conflict of interest in relation to this article/CME activity.

REFERENCES

1. Lipton JA, Marbach JJ. Ethnicity and the pain experience. *Soc Sci Med.* 1984;19:1279-1298.
2. Todd KH, Lee T, Hoffman JR. The effect of ethnicity on physician estimates of pain severity in patients with isolated extremity trauma. *JAMA.* 1994;271:925-928.
3. Knox VJ, Shum K, McLaughlin DM. Response to cold presser pain and to acupuncture analgesia in oriental and occidental subjects. *Pain.* 1977;4:49-57.
4. Ng B, Dimsdale JE, Shragg GP, Deutsch R. Ethnic differences in analgesic consumption for postoperative pain. *Psychosom Med.* 1996;58:125-129.
5. Zborowski M. Cultural components in response to pain. *J Soc Issues.* 1952;8:16-30.
6. Davis BD. Cultural dimensions of pain. In: Carter B, ed. *Perspectives on Pain*, 1st ed. London, Arnold; 1998:65-83.
7. Kosko DA, Flaskerud JH. Mexican American, nurse practitioner, and lay control group beliefs about cause and treatment of chest pain. *Nurs Res.* 1987;36:226-231.
8. Calvillo ER, Flaskerud JH. Review of literature on culture and pain of adults with focus on Mexican-Americans. *J Transcult Nurs.* 1991;2:16-23.
9. Meehan JP, Stoll AM, Hardy JD. Cutaneous pain threshold in Native Alaskan Indians and Eskimos. *J Appl Physiol.* 1954;6:397-400.
10. Winsberg B, Greenlick M. Pain response in Negro and white obstetrical patients. *J Health Soc Behav.* 1967;8:222-227.

11. Flannery RB, Sos J, McGovern P. Ethnicity as a factor in the expression of pain. *Psychosomatics*. 1981;22:39-40,45,49-50.
12. Myslinski NR, Buxbaum JD, Parente FJ. The use of electromyography to quantify muscle pain. *Methods Find Exp Clin Pharmacol*. 1985;7:551-556.
13. Ellermeier W, Westphal W. Gender differences in pain ratings and pupil reactions to painful pressure stimuli. *Pain*. 1995;61:435-439.
14. Moltner A, Hholzl R, Strain F. Heart rate changes as an autonomic component of the pain response. *Pain*. 1990;43:81-89.
15. International Association for the Study of Pain. Pain terms: a list with definitions and notes on usage. Recommended by the IASP Subcommittee on Taxonomy. *Pain*. 1979;6:249.
16. Bates MS. Ethnicity and pain: a biocultural model. *Soc Sci Med*. 1987;24:47-50.
17. True RM. Obstetrical hypoanalgesia. *Am J Obstet Gyn*. 1953;67:373.
18. Larkins FR. The influence of one patient's culture on pain response. *Nurs Clin North Am*. 1977;12:663-668.
19. McCabe GS. Culture influences on patient behavior. *Am J Nurs*. 1960;60:1101-1104.
20. Koopman C, Eisenthal S, Stoeckle JD. Ethnicity in the reported pain, emotional distress and requests of medical outpatients. *Soc Sci Med*. 1984;18:487-490.
21. Clark WC, Clark SB. Pain responses in Nepalese porters. *Science*. 1980;209:410-412.

22. Chapman W, Jones C. Variations in cutaneous and visceral pain sensitivity in normal subjects. *J Clin Invest.* 1944;23:81-91.
23. Sternbach RA, Tursky B. Ethnic differences among housewives in psychophysical and skin potential response to electric shock. *Psychophysiology.* 1967;1:241-246.
24. Culebras A. Hispanic: an epidemiologically meaningless term. *Arch Neurol.* 1995;52:533-534.
25. Strogatz DS. Use of medical care for chest pain: differences between blacks and whites. *Am J Public Health.* 1990;80:290-294.
26. Lewis LM, Lasater LC, Brooks CB. Are emergency physicians too stingy with analgesics? *South Med J.* 1994;87:7-9.
27. Wilson JE, Pendleton JM. Oligoanalgesia in the emergency department. *Am J Emerg Med.* 1989;7:620-623.
28. Jantos TJ, Paris PM, Menegazzi JJ, Yealy DM. Analgesic practice for acute orthopedic trauma pain in Costa Rican emergency departments. *Ann Emerg Med.* 1996;28:145-150.
29. Jones JS, Johnson K, McNinch M. Age as a risk factor for inadequate emergency department analgesia. *Am J Emerg Med.* 1996;14:157-160.
30. Acute Pain management Guideline Panel. Acute Pain Management: operative or Medical Procedures and Trauma: Clinical Practice Guideline. AHCPR Pub. No. 92-0032. Rockville, MD: Agency for Health Care Policy and Research, Public Health Service, U.S. Department of Health and Human Services 1992.

31. Nettlebladt P, Fagerstrom CF, Uddenberg N. The significance of reported childbirth pain. *J Psychol Res.* 1976;20:215-221.
32. Calvillo ER, Flaskerud JH. Evaluation of the pain response by Mexican American and Anglo American women and their nurses. *J Adv Nurs.* 1993;18:451-459.
33. Vangen S, Stoltenberg C, Schei B. Ethnicity and use of obstetrical analgesia: do Pakistani women receive inadequate pain relief in labor? *Ethn Health.* 1996;1:161-167.
34. Streltzer J, Wade TC. The influence of cultural group on the undertreatment of postoperative pain. *Psychosom Med.* 1981;43:397-403.
35. Ng B, Dimsdale JE, Rollnik JD, Shapiro H. The effect of ethnicity on prescriptions for patient-controlled analgesia for postoperative pain. *Pain.* 1996;66:9-12.
36. Paris PM, Stewart R. *Pain Management, Emergency Medicine*, 4th ed. St. Louis: Mosby-Yearbook, Inc. 1998:276-300.
37. Poser E. Some psychosocial determinants of pain tolerance. Read at XVIth International Congress of Psychology, Washington DC; 1963.
38. Howell JD. Ethnicity and estimates of pain by physicians. *JAMA.* 1994;272:1168-1169.
39. Young MP. Ethnicity and estimates of pain by physicians. *JAMA.* 1994;272:1169.
40. Hahn R. The state of federal health statistics on racial and ethnic groups. *JAMA.* 1992;267:268-271.

41. United States Bureau of the Census: Statistical abstract of the United States,
Washington, DC, US Government Printing Office; 1995.
42. Allport G. *The Nature of Prejudice*. New York: Addison-Wesley Publishing;
1958:192.