

An assessment of basic pain knowledge and impact of pain education on Indian Anaesthesiologists - a pre and post questionnaire study

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ABSTRACT

Background and Aim: Under-treatment of pain is a global phenomenon and the basic knowledge of pain amongst health care providers continues to be deficient. The aim of this study was to determine the basic prevalent knowledge of pain among Indian anaesthesiologists and the impact of a pain educational programme on their existing knowledge. **Methods:** A nine lectures pain continuing medical education (CME) program was conducted for 114 young anaesthesiologists. All delegates were given 21-item questionnaire in a pre and post-test design. The 69 paired responses were compared for individual questions using McNemar test and the overall improvement in knowledge was analysed using paired *t*-test. **Results:** The pre-test score for correct answers was 61.9%. The post-test score was 69.8% and this improvement was found to be statistically significant ($P < 0.001$). A significant improvement in perception was detected that 'opioids usage was less likely to cause addiction' (correct responses increased from 4.2 to 77.4%, $P = 0.001$). **Conclusion:** The questionnaire study found that the current basic knowledge about pain amongst young anaesthesiologists is deficient. The physician's major concerns were opioid addiction and respiratory depression with opioid usage. The results of pre and post-test questionnaire survey have shown that pain education can help in improving knowledge of pain management.

Key words: Indian anaesthesiologists, pain education, pain knowledge, pre and post test survey

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INTRODUCTION

There is a growing recognition that pain is a complex experience, yet it is among the most neglected and under-treated among patient's complaints.^[1] It is compounded by under-diagnosis by healthcare providers, further worsening the quality of life.^[2] An American study has shown that doctors are often reluctant to provide adequate treatment of pain due to inadequate formal training in pain management.^[3] The teaching of pain-related topics in medical studies is fragmented; important topics are poorly covered and specific pain curricula are not adopted.^[1]

Pain education for health professionals at all levels has been repeatedly identified as an important step to changing ineffective pain management practices.^[4]

Continuing Medical Educational (CME) program is one such effective method of educating doctors in the pain management since there is a major lack of formal medical school teaching on pain issues.^[4]

The anaesthesiologists, with their profound knowledge of anatomy, physiology and of pain and with their technical expertise of regional anaesthesia and pharmacology of analgesics, have the potential to become competent pain therapists.^[5] Unfortunately, unlike other dynamic and fast growing subspecialty topics in anaesthesia like airway management, ultrasound blocks, pain management often takes a back seat and CMEs on pain are less frequently organised and poorly attended. A vital question is often asked, "Is the pain CME needed? Will it really help?" This pain knowledge assessment study was planned during a CME on pain

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management to find the answer to this question. A pre and post questionnaire test was undertaken, which is considered a good tool to understand the impact of the educational activity amongst the participants.^{6,71} The aim of the study was to determine the prevalent basic pain knowledge amongst Indian anaesthesiologists and to assess the impact of the pain CME on their knowledge.

METHODS

This study was approved by the Institutional Review Board (IRB) and registered with Clinical Trial Registry of India (REF/2012/06/003675). The willingness of completing and submitting the questionnaire itself was considered an implied consent for participation.

A structured CME on pain management was conducted for young healthcare providers, majority being anaesthesiologists. All delegates were given a set of questions with a delegate-specific code, to answer at the beginning of the CME. The delegates had around 20 minutes to answer 21 questions and the answer sheet had to be submitted prior to the lectures. They were requested to reply the same set of questions at the end of the teaching activity. The delegate code helped in identifying each delegate pre and post test.

The CME included nine lectures on diagnosis, aetiology and management of various aspects of chronic pain, cancer pain and acute pain. At the end of the CME, a feedback form with respect to process and content of the teaching programme was collected. CME credit points were awarded by State Medical Council (MMC).

Assessment instrument

Based on questionnaire from previous studies, a comprehensive questionnaire was drafted.^{1,8,91} Since acute, chronic and cancer pain are different entities, a total of 21-item questionnaire was prepared in three parts including chronic non-cancer pain, cancer pain, and acute pain. Each domain had a set of seven questions. The questions included certain statements pertaining to pain and the delegates had to indicate whether the statements were true or false; an option for 'don't know' was also included. If both true and false was ticked, then the answer was taken as 'don't know'. If an option (true/false) and don't know was ticked, then the responder was given the benefit of doubt and the 'don't know' option was ignored. A question that was not attempted was taken as 'don't know'.

The pre-test questionnaire also included the data with respect to gender and occupation (student, practising

anaesthesiologist and practicing pain or any other specialist). Details of previous pain education (yes/no) were also obtained. The intent of utilising study results for publication was mentioned in the questionnaire. It was also emphasised that the identity of individuals would not be revealed.

Analysis of questionnaires

Individual questions were checked for overall correctness, and percentage of correct responses was noted. For further analysis, the right answer was scored as 1 and wrong answer or answer 'not known' was scored as zero. Total score was given to each domain and the maximum score was seven. The percentage was also determined for each domain.

The paired *t*-test was used to determine impact of pain education on delegates. The same procedure was used for each domain and for overall performance. The pre and post test responses were matched on the basis of code present in the response sheet. Responses that could not be matched were not included in the paired *t*-test.

All analyses were performed using SPSS® version 19 and MS Excel® software. The mean correct scores of pre and post test were determined using unmatched pre and post test data. The influence of gender and previous teaching in pain over mean pre test score was analysed using unpaired *t*-test. The influence of occupation (student, practising anaesthesiologist and practicing pain and others speciality) on mean pre test score was analysed using ANOVA. Paired student *t*-test were used to compare matched pre and post test and each individual questions, the pre and post test score was checked using McNemar's test. $P < 0.05$ was taken as significant.

RESULTS

A total of 114 delegates registered for the CME and out of that 93 questionnaires were returned at the beginning of CME including 8 blank questionnaires, and hence only 85 questionnaires were included in the pre-test analysis. At the end of the CME, we received 72 completed questionnaires to be included for the study.

Table 1 summarises the background of delegates with respect to their gender, occupation and whether they received any previous education in pain. Ninety four percent of all delegates were anaesthesiologists, students or practising doctors. The overall performance based on unmatched pre and post test is reflected in Figure 1. The pre CME score for correct answers was around

61.9%. Appropriate tests between gender, occupation and whether participant had received previous teaching in pain and pre test score [Table 1] did not show any significant association.

On the basis of delegate code, 69 questionnaires were matched for pre and post tests. Each individual question was assessed with pre-test and post-test findings using McNemars test [Table 2]. The overall scores and score in each domain were analysed using paired T-test. Statistically significant improvement was found in the results of post CME questionnaire ($P < 0.001$) [Figure 2]. This change was seen in all the three domains individually.

DISCUSSION

The results of the pre-test questionnaire survey did show a deficiency in the baseline pain knowledge amongst the delegates and an overall pre-test score for correct answers was 61.9%. The post test score was

69.84% and the improvement in knowledge was found statistically significant ($P < 0.001$).

Ninety four percent of doctors were anaesthesiologists and 48% of them had received some teaching on pain. The basic pain knowledge assessed by the pre-test questionnaire was found similar in all delegates and not influenced by gender, occupation or previous teaching in pain.

Since the aetio-pathology and management of acute, chronic and cancer pain are all unique,^[10] the questionnaire was divided into three domains. The knowledge of acute pain management was found to be better than cancer or chronic pain. This could be attributed to the fact that anaesthesiologists commonly treat acute post-operative pain.

The average pre-test questionnaire score for correct answers was 61.9%. It was impressive to find in the pre-test the true statement that the cultural and social backgrounds have an effect on pain perception, was rightly answered by 90%. Some concepts of chronic pain pathophysiology remained unclear to delegates as reflected by the poor correct responses to false statements such as ‘chronic pain being closely related to tissue damage’ and ‘patients should be encouraged to avoid pain inducing activities’. Only 22% of the delegates answered these questions rightly. Similarly, on analysing the subset of questions on cancer pain, it was found that majority of delegates (95%) believed that the opioids usage can lead to addiction, which improved markedly (correct responses - 77.5%) after the CME. A little less than 50% of the delegates answered question 10 on opioids and respiratory depression wrongly. The overall correctness of total responses to 21 questions showed an improvement

Delegate details	No of delegates mentioned in bracket	Mean Scores	SD	P value
Gender (t-test)	Male (45)	62.99	16.55	
	Female (40)	60.95	14.23	
Occupation (ANOVA)	Student (55)	61.29	15.73	0.083
	Practicing anaesthesia (22)	64.72	14.30	
	Practicing anaesthesia and pain (5)	69.52	13.72	
	Others (3)	42.86	4.76	
Received teaching on pain (t-test)	Yes (42)	65.04	15	0.08
	No (43)	59.14	15	

$P < 0.05$, significant, SD – Standard deviation, ANOVA – Analysis of variance

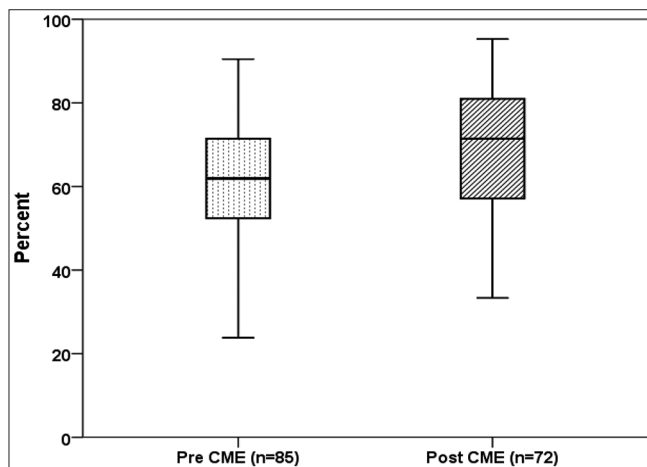


Figure 1: Box and whisker plot of percent score for pre and post test (unmatched). Middle line inside the box indicates median

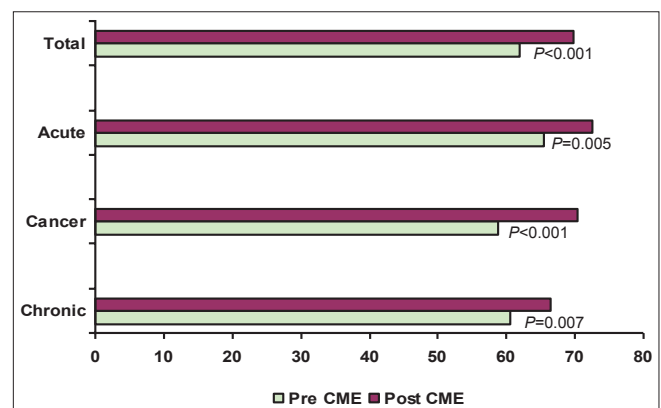


Figure 2: Results of matched pre and post test, using paired t-test, $P < 0.05$ = significant

Table 2: Assessment of individual questions using McNemars test ($P < 0.05$ = significant)

Questions	Ans	*Pre %	*Post %	P value
Chronic pain is closely related to tissue damage	F	22.54	19.72	0.18
Risk of addition to prescribed opioid analgesics to chronic pain patients is quite high	F	52.11	83.10	<0.001
Cultural and social backgrounds have an effect on pain perception	T	90.14	83.10	0.227
There is little to be gained from pharmacological treatments	F	77.46	69.01	0.791
Chronic pain is best treated using a multi-disciplinary approach	T	87.32	94.37	0.18
Nerve blocks will prevent pain on a short term basis	T	45.07	40.85	0.607
Patients should be encouraged to avoid pain-inducing activities	F	22.54	19.72	0.18
Any patient who is given opioids for pain is at a 25% or more risk for addiction	F	4.23	77.46	0.001
When switching from oral morphine to parental morphine one should use the same number of milligrams	F	81.69	90.14	0.07
When opioids are taken on a regular basis, respiratory depression is rare	T	52.11	76.06	0.001
Patients who complain of pain out of proportion to its cause are usually substance abusers	F	56.34	70.42	0.087
Increasing request for analgesics usually indicates unrelieved pain	T	67.61	63.38	0.664
Morphine for cancer pain shortens life but makes people more comfortable	F	71.83	73.24	1.000
Opioid are not indicated for dyspnoea in patients with advanced cardiopulmonary disease	F	33.80	42.25	0.263
A patient should experience discomfort prior to giving next dose of pain meds	F	88.73	87.32	1.000
It is a patient's right to expect significant pain relief as a consequence of treatment	T	85.92	84.51	1.000
Narcotics should not be used in paediatric patients	F	69.01	70.42	1.000
Respiratory depression is the most common side effect of morphine	F	70.42	83.10	0.064
It may often be useful to give a placebo to a patient with pain to assess if he is genuinely in pain	F	46.48	56.34	0.143
25% of patients receiving analgesics on regular basis become drug addicts	F	49.30	77.46	<0.001
Patients with chronic pain need high doses of analgesia in comparison to patients with acute pain	T	45.07	43.66	1.000

* % of correct responses

from 61.9 to 69.84%, $P < 0.00$. Knowledge related to opioid prescription, drug addiction and respiratory depression had shown a significant improvement.

Pain education programs lack a widely accepted assessment tool. Harris *et al.* have drafted KnowPain-50 for assessing effectiveness of chronic pain teaching programme.^[11] Our questionnaire content was kept short and included 3 domains: acute pain, cancer pain and chronic pain.

Watt-Wattson *et al.* in 2009 surveyed the prelicensure pain curricula in health science faculties in Canadian universities.^[12] Average hours allotted to pain course content amongst the 32.5% respondents in the health science programs varied from 13 to 41 hours. Based on International Association for the Study of Pain (IASP) recommendation, an interdisciplinary pain course for under graduate students from dentistry, medicine, nursing, pharmacy, physical therapy and occupational therapy was developed and implemented at the University of Toronto, Canada.^[4] Their evaluations were positive and statistically significant changes were demonstrated in students' pain knowledge and beliefs.

There is a general deficiency of available pain teaching curriculum in developing countries. Pain is not a priority for healthcare administrators in developing

countries, so also pain education. It is the need of the hour, for national pain societies, especially in the developing world, to come together and decide on the teaching hours and mandate some standard topics to be included in continuing medical education activities and also in the medical curriculum thus help establishing a good framework for pain education.

Limitations: This study has few limitations. The questions included in the questionnaire were drafted by the investigator into three domains, including acute pain, cancer pain and non-cancer pain. The framed questionnaire was not validated. Neither the content was discussed with the faculty, nor was any question specifically addressed during the CME. Our intention of doing so was, not to assess the attention level or alertness of the delegates during the CME, but to see the overall enhancement of basic concepts of pain management.

CONCLUSION

The questionnaire study found that the current basic knowledge about pain amongst young doctors is deficient. There are generally prevalent fears about opioid addiction and respiratory depression with usage of opioids. The results of the pre and post-test questionnaire survey have shown that such pain education can help in improving pain knowledge amongst doctors.

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Announcement

INDIAN SOCIETY OF ANAESTHESIOLOGISTS

KERALA STATE CHAPTER

Invites Applications / Nominations from Anaesthesiologists working in India for the

KPR YOUNG ANAESTHESIOLOGIST AWARD

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A. Eligibility

1. Should be within 10 years after the post graduate qualification (Certificate from the HOD and or Copy of the MD/DA certificate)
2. Member of ISA

B. Selection criteria

1. Research achievements in the field of Anaesthesia
2. Academic and professional achievements
3. Contributions to cause of Anaesthesia
4. Contributions to ISA
5. Contribution to social and public causes

C. The award carries

1. Cash award of Rs. 15,000/- (Rupees Fifteen thousand)
2. Citation and medal (will be presented during the Annual Kerala State Conference).
3. Presentation of his / her major research work at the 38th Kerala State Annual Conference on 11th-12th October 2014 at Perinthalmanna, Malappuram, Kerala.
4. TA (II tier AC train fare by the shortest route) and local hospitality for the presentation.

The application with reprints/copies of publications and other supporting documents should reach the Co-ordinator on or before 1st August, 2014 (both email and surface mail).

Dr. Venugopal A.

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