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ORIGINAL ARTICLE

A study of knowledge, attitude and practice of hospital consultants, resident doctors and private practitioners with regard to pre-hospital and emergency care in Lucknow

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Abstract

Background Burden of death and disability resulting from lack of emergency medical system (EMS) and emergency care is very high in low and middle income countries (LMIC).

Aim To study the knowledge, attitudes and practices of pre-hospital care and emergency services among health care providers of Lucknow

Setting and Design Cross-sectional survey, 200 residents, 104 hospital consultants and 108 private practitioners

Material and Methods A close ended, self administered questionnaire based on 5-point Likert scale with 30 items of knowledge, attitude and practice of pre-hospital and emergency care

Results Median scores of knowledge (26/50), attitude (41/50) and practices (27/50) showed less than adequate knowledge and practices. However, a positive attitude was seen in all the 3 group of respondents i.e. resident doctors, hospital consultants and private practitioners.

Conclusion Lucknow is the capital city of Indian largest state – Uttar Pradesh with over 100 years of established medical education. The results of the study in this town are applicable to most developed cities in India. Lack of adequate knowledge and practices in emergency medical system (EMS) at Lucknow represent a dismal situation and require continuing medical education in this area.

Keywords Emergency medical system · Cross-sectional survery · Health care

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Introduction

Despite epoch making performances in information technology and human resource creation for health care delivery, India is naïve in providing emergency medical services especially the on-spot pre-hospital care to its subjects. Elective treatments, critical care and high profile surgeries for cardiac ailments, major cancer resections, renal and other organ

transplantation, major birth defect corrections, etc are regularly undertaken at several centers both in public and private hospitals in urban India. However, both in metropolitans and major cities of Indian states pre-hospital (on the spot) trauma and emergency services are almost non-existant [1]. It is apparent that one does not need any research to discover that apart from rudimentary and archaic services provided by the First Aid Society of India and St. John's Ambulance Brigade in the pre-independent era there has been no major effort by health care delivery system planners to cater to life support system and efficient transport of emergency cases. In post independence era India has heavily invested and evolved an exemplary three tier rural health care delivery system taking care of the common illnesses and carried out preventive, reproductive and child health and family welfare programs [2]. It is now known, that by 2030s' the 70: 30 rural-urban population ratio will equalize. The need for emergency services in rural areas will not be any less but will require a different model than from urban centers [3]. Elective treatment of complicated illnesses for eg deformity correction, transplant surgery, cancer operations, critical care and dialysis programmes can be outsourced to bigger cities or a higher center. Nonetheless, the local population will require health services to be delivered at the nearest point for life threatening emergency illnesses.

Furthermore, medical education in India with more than 200 medical colleges provides world class undergraduate curriculum, postgraduate education in a large number of super specialties under the mandate of the Medical Council of India. Ironically, it has ignored human resource creation in the specialty of accident and emergency services [4]. Medical institutions in India that are able to impart structured post graduate education and fellowship programs in complicated specialties for example micro-vascular surgery, urology, cancer surgery, endocrinology etc. have yet to start education in the specialty of Accident and Emergency on a wide scale [5]. For this purpose we have undertaken a cross-sectional study using a structured questionnaire on a 5 point Likert scale [6, 7] after a focus group discussion to test knowledge, attitude and practices of emergency and pre-hospital care amongst 412 health care providers in Lucknow. The major objective of this study is to provide a basis and advocacy for the capacity building exercise for developing pre-hospital and emergency infrastructure for India.

Methods

A formative qualitative study was conducted as a focus group discussion with final year medical students and residents doctors. Similarly, at least 10 experienced doctors from the specialties of surgery, medicine and pediatrics were interviewed for their views on teaching / training of pre-hospital care in India. This led us to evolve a structured close ended questionnaire incorporating knowledge, attitude, practices (KAP) and constraints (barriers) in the disposition of pre-hospital care in India. From the item mesh that we developed from open ended qualitative interviews a questionnaire containing 30 items, 10 each for knowledge, attitude and practices was finally adopted after peer group discussions. The questionnaire was tested for face validity by 2 peers and was piloted on 10 subjects. Thus, a final tool with 30 items each on an ordered Likert scale of one to five was evolved. The questions were posed in a manner that the responder obtaining higher scores towards right side of the five point scale were those with higher levels at the KAP assessment; i.e. higher the scores of the knowledge higher were the perceived consequences and value judgments [8]. Higher scores of attitude also included intentions and motivations of the responders to invest in the pre-hospital service provision and higher scores in practice and perceived constraints were to be obtained if the subjects were actually involved in pre-hospital care and management. The questionnaire was designed as per standard module and practices of tool and questionnaire development [9]. Questions were phrased in simple English mostly in past indefinite tense avoiding ambiguity. The Hindi translation was not done because all the responders were doctors conversant with English. Efforts were made not to challenge the responders when answering knowledge and practice questions and to obtain the current status of knowledge and practice amongst active health care providers of the city of Lucknow. Informed consent and assured confidentiality to the responder was also provided in the questionnaire.

Subjects of study and sample size

It was decided to include resident doctors who were within 3 to 5 years out of medical school, hospital consultants and private practitioners who were at least 5 years after their graduation. The sample size was estimated using the formula

$$n = \frac{Z^2_{1-\alpha/2} \cdot p(1-p)}{e^2}$$

where; p = proportion of responses, α = probability of type I error, $Z_{1-\alpha/2}$ is the upper 100 – $_{1-\alpha/2}$ percentile of standard normal distribution, e = precision (half width of confidence interval. Since no data was available, a proportion (p) of 0.5 was assumed to have significant knowledge of pre-hospital and emergency care in India that led to the most conservative sample size. Taking e to be 0.05 with α = 0.05, the estimated sample size 384 was calculated.

The subjects were drawn from Lucknow the capital city of India's most populous state Uttar Pradesh. The 1st (residents) and the 2nd group (consultant) were selected by total in-numeration so there was no sample required. All the consultants of the departments of anesthesiology, surgery, medicine, pediatrics, orthopedics, ENT, gynecol-

ogy, ophthalmology, cardiology, neurology, plastic surgery, neuro surgery, pediatric surgery etc. were approached and 104 completed the interview schedule. A list of private practitioners (practicing in Lucknow) was obtained from the Indian Medical Association office and practitioners were selected by random number allocation. Majority of the questionnaire was interviewer administered unprompted by the investigators. The medical students on the team conducted several sorties to fend for the completed interview schedules. The data was entered in computer in excel worksheet by 2 medical students (AKA and AK) that was cross checked by a social scientist (VD).

Results

A total of 500 questionnaires were distributed, out of which 412 were completed. These included 200 resident doctors (junior residents or MD / MS students and senior residents or post MD / MS) and 104 faculty or consultants and medical teachers of clinical departments (anesthesiology, surgery, medicine, pediatrics, orthopedics, ENT, gynecology, ophthalmology, skin, cardiology, neurology, plastic surgery, neuro surgery, pediatric surgery etc.) of the KG Medical University completed the questionnaire. Out of 196 private practitioners approached 108 (55%) completed and returned the questionnaire.

Of the 3 main attributes to be tested – knowledge, attitude, practice each with 10 items with maximum score of 5 per item, a total of 50 was the maximally obtainable score per attribute. A median value of 30 per attribute was considered as adequate or sufficient score for a positive knowledge, attitude and practice with regards to pre-hospital and emergency care (emergency medical system – EMS) in India. There were not much differences in median scores and quartiles of KAP between residents, hospital consultants and private practitioners. A test of significance was not applied as it was not considered important to compare the 3 groups. Less than adequate knowledge (median score 26\50) and practice (median score 27/50) was obtained. A positive attitude to adopt EMS (median score 41/50) was seen in all the 3 groups (table 1).

For the sake of brevity of presentation with the major objective of studying knowledge, attitude and practice of emergency medical system, a combined data of all the 3 groups of providers, is presented in table 2. Median scores, 1st quartile (Q1), 3rd quartile (Q3) and quartile difference (QD = Q3 – Q1) for all the respondents (n=412) have been shown for each of 10 items of knowledge, attitude and practice. The scores of attitude towards EMS, in general, were much higher than those of knowledge and practice. The table provides a short syntax of the questions posed, thus allowing the reader to understand the content and gravity of the information and make his own judgment.

Discussion

A diverse set of illnesses that span the spectrum of communicable infections, non-communicable conditions, obstetrics and injuries are addressed by emergency medical system (EMS). All these conditions can either present to the EMS in their acute stages (diabetic hypoglycemia, septicemia, premature labour, asthma; etc.) or are acute in their natural presentation (such as myocardial infarction, acute hemorrhage and injuries). There are no epidemiological studies from India on the burden of illness that is addressed by pre-hospital and emergency services (EMS). On a global scale injuries were responsible for 21.7% of global deaths and 31.1% of DALY's lost in 2001 [10]. Burden of death and disability resulting from lack of EMS is very high in low and middle income countries (LMIC) [11]. Nevertheless, the medical man-power and resource in India is noteworthy. Indian doctors are employed and are sought after internationally. It was therefore important to test the knowledge, attitude and practice (KAP) of EMS amongst doctors in India. It was not the aim to compare the same amongst the various groups of providers. A study conducted in Lucknow should be representative of majority city population of India because it has an educational standard and history of illustrious medical education for over 100 years.

Therefore a questionnaire based cross-sectional study on health care providers at Lucknow was designed. The questionnaire was in simple English language that was self-administered. The language and questions were posed in a manner that minimum threat was perceived by the responders. The two medical students on our investigating team were trained in the skills of interviewing and

Table 1 Median score and QD – quartile difference (Q3 – Q1) of knowledge, attitude and practice of emergency medical system (EMS) between resident doctors, hospital consultants and qualified private medical practitioners

	Residents		Consultants		Private Practitioners	
	Median	QD	Median	QD	Median	QD
Knowledge	24	5	32	9	28	11
Attitude	40	8	43	5	41	8
Practice	26	10	28	5	26	7

Table 2 Median score, quartiles and QD – quartile difference (Q3 – Q1) for emergency medical system (EMS) for each item of knowledge (10 items), attitude (10 items) and practices (10 items)

	Median scores	Q1	Q3	QD (Q3-Q1
Knowledge				
1. Learned pre-hospital care during MBBS	2	2	3	1
2. Courses/training in pre-hospital care after the completion of your medical education (after basic MBBS degree)	2	1	2	1
3. Know about Basic Life Support/Advanced Life Support	3	2	3	1
4. Feel confident enough in providing CPR (Cardio-Pulmonary Resuscitation)	3	3	3	0
5. Knowledge about RTS (Revised Trauma Scale) for prognosis of injury patients	2	2	3	1
6. Is your staff trained in Pre-hospital care	2	1	2	1
7. Aware of the recommended methods of transportation of emergency cases according to the distance between site of trauma and health care facility	2	2	3	1
8. What should be the components of Pre-hospital care ambulance carry	4	3	5	2
9. Are you confident of independently managing an emergency patient in your working environment (hospital/clinic)	3	3	5	2
10. Way you respond in emergency case of suspected acute Myocardial Infarction	2	2	4	2
Attitude				
11. Trained medical personnel accompany the ambulance at the site of trauma /emergency	4	3.5	5	2
12. Mandatory legislation for formal training and skills transfer in pre-hospital care (BLS only) to fire workers, police personnel, factory workers, air-hostess, paramedics and professional drivers etc	4	4	5	1
13. Central ambulance service with BLS provider would decrease the patient mortality / morbidity in your city	5	4	5	1
14. Medical graduates in India should have mandatory training in ALS	5	4	5	1
15. Politicians / health care providers take up PHC as their priority agenda	4	4	5	1
16. Access and phone number to the emergency department of your city to be called at the emergency? (I am willing to provide my available expertise for all emergencies)	4	3	5	2
17. Readiness to Join/form a society / an organization providing pre-hospital care and transportation at the site of emergency	2	2	4	2
18. Communication call centers manned by paramedics at every 50 kms be established along national highways	5	4	5	1
19. Training of pre-hospital and basic life support emergency care should be provided to	4	4	5	1
20. Dedicated specialty (as in USA / Europe , UK) in Pre-hospital and EMS in India	5	3	5	2
Practice				
21. Patients at your hospitals/clinics are brought by ambulance having received adequate BLS	2	1	2	1
22. Provided Cardio-Pulmonary Resuscitation (CPR) to patients	5	2	5	2
23. Attended lectures /courses/seminars on pre-hospital management/emergency and critical care	2	1	3	2
24. Confidently deliver A B C ^{2} D E in the care of emergency patient	3	2	3	1
25. Protocols and algorithms used at your hospital for trauma/emergency patient management	2	1.3	4	3
26. Basic life saving equipments (mucous extractor, Ambu Bag, mouth to mouth airway) with you	1	1	2	1
27. Will you send your staff to a EMS training camp	3	2	4	2
28. Mismanagement in regard to pre-hospital and emergency care in your hospital/clinic/city	3	3	4	1
29. CATS (Centralized Accident and Trauma Services) can be started and would be effective	2	1	2	1
30. Present on an accident site, how would you respond	4	3	5	2

approached getting the questionnaires completed. They casually, apparently disinterested in their responses, and at-times disappeared while the responder was filling the questionnaire in order to record unbiased opinions non-threateningly. An average 15 minutes were taken by the responders to complete the interview schedule. Of the total 500 ques-

tionnaires, 412 were complete and 88 were incomplete which were either answered incompletely or returned blank and thus not included in the final analysis. All the 3 representative group of doctors ie resident doctors, hospital consultants and private practitioners were included in the sample. However, inter group analysis between these 3 broad groups of health care providers was not the aim of this study (table 1). The instrument recording the knowledge, attitude and practice had 10 items for each. All the questions were on an ordinal scale of five point Liker scale. The answers were ordered in a fashion that higher score represented higher KAP. Therefore, total scores, their median scores and their quartiles were taken rather than means and standard deviation because of non-parametric nature of the data (table 2).

That the need for EMS to be evolved exists has been emphasized over and again in several Indian publications on trauma [12]. A comprehensive report of First National Consultation on Trauma System Development in India was published by government of Gujarat in year 2005 [13]. It was recognized that 5 lakh deaths from injury resulted per annum in India. Trauma victims alone occupy up to 1/3rd of the public sector hospital beds in India. A model trauma system policy and guidelines for pre-hospital care system were published in this document [14]. However, there are no Indian data on EMS on this website. These were admittedly extrapolations from WHO models rather than hard Indian data. A thorough search of literature has failed to show any publication on knowledge, attitude and practice or similar studies regarding EMS in India. It is therefore, the first such study which has shown that despite a high profile medical education system in India that provides international human medical resource, we do lack in knowledge and in practice of providing a comprehensive emergency medical system to our masses. Indeed, accredited training in basic and advanced life support is essential to become a doctor in advanced nations. It was however, seen in this study that the attitude towards EMS in the health care providers was extremely positive. These data in the present study should provide the advocacy and material for health care planners in country to establish the commodity of EMS.

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