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A Descriptive Study of Surgical Emergencies in a First Referral Unit of Trans-Himalayan State in India

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ABSTRACT

The primary health care (PHC) approach provides an essential foundation for health emergency and risk management, and for building community and country resilience. The PHC approach ensures the availability of integrated health services for most health needs through primary care and essential public health functions, and thus reduces nonemergency-related morbidity and mortality. The objective of this study was to describe the distribution of the medical/ surgical emergencies in a civil hospital of district Kangra, Himachal Pradesh. We conducted this observational descriptive study in Civil hospital Baijnath of district Kangra, Himachal Pradesh. We obtained the secondary data from the emergency register and included all the surgical emergencies which were attended in this hospital over a period of one year from July 2019 through June 2020. During the period of one year from July 2019 to June 2020, a total of 4874 patients were admitted in emergency department of Civil Hospital Baijnath District Kangra (H.P.). The age of patients ranged from 7 years to 81 years with mean age of 38 years (SD= 9.2).773 (15.9%) of patients were having history of trauma following road side accident, fall, assault or accidental injury. 2263(46.4%) patients had acute abdomen and 1028(21.1%) patients managed for urinary obstruction. 226(4.6%) patients were of surgical infections and 584(12%) other patients were managed for various diseases like upper gastrointestinal haemorrhage, acute limb ischemia, terminal stage of malignancy, late post operative complications, septic shock. Out of 4874 patients attended, 1231 (25%) of the cases were referred to tertiary health care facility. Infrastructure and supplies are integral to service delivery and the development of resilient primary care, and investments must be made in this area to guarantee good quality services.

Key Words: Primary Health Care, Emergency Services, North India

INTRODUCTION

The primary health care (PHC) approach provides an essential foundation for health emergency and risk management, and for building community and country resilience. The PHC approach ensures the availability of integrated health services for most health needs through primary care and essential public health functions, and thus reduces nonemergency-related morbidity and mortality.[1] Many patients who present to district (first-referral) level hospitals require surgical treatment for trauma, obstetric, abdominal and orthopaedic emergencies. Often surgery cannot be safely postponed to allow their transfer to a secondary or tertiary-level hospital, but many district hospitals in developing countries have no specialist surgical teams and are staffed by medical, nursing and paramedical personnel who perform a wide range of surgical procedures, often with

inadequate training. [2]

In addition, PHC also has a key role in engaging communities, which enables improved surveillance, increases trust in services, improves utilization during emergencies, and ensures that preparedness and response activities are appropriate to the local context. The ability of the health system to adequately manage the risks of emergencies and provide access to good-quality care is often affected by those very emergencies that disrupt many important elements, including physical accessibility; availability of a competent health workforce; availability of funding; supply chain management and resources; health facility infrastructure; electricity and water supply; government oversight; and effective leadership and organizational management.[3]

The quality of surgical and acute care is often further constrained by poor facilities, inadequate low technology apparatus and limited supplies of drugs, materials and other essentials. All these factors contribute to unacceptable rates of mortality resulting from trauma, obstetric complications and non-traumatic surgical disorders as well as disability resulting from injury. District hospitals should be able to manage all common surgical and obstetric procedures.[4] However, the establishment and maintenance of effective district surgical services requires personnel with appropriate education and training, continuing education programmes in clinical management to maintain quality in care, appropriate physical facilities, suitable equipment and instruments, a reliable system for the supply of drugs and medications, surgical materials and other consumables.[5]

The objective of this study was to describe the distribution of the medical/ surgical emergencies in a civil hospital of district Kangra, Himachal Pradesh.

METHODOLOGY

We conducted this observational descriptive study in Civil hospital Baijnath of district Kangra, Himachal Pradesh. Civil Hospital Baijnath is the first referral unit (FRU) which caters to a population of approximately 1,50,000 people. The nearest tertiary care facility from this hospital is nearly 70 km away which takes approximately 1 hour and 30 minutes depending on the traffic, road as well as the weather conditions. We obtained the secondary data from the emergency register and included all the surgical emergencies which were attended in this hospital over a period of one year from July 2019 through June 2020. Patients with obstetrical and pediatric emergencies were excluded, as there were separate team to deal with these patients. We entered and cleaned the data using Microsoft excel and analysed it using Epi Info version 7.2. We presented the quantitative variables through mean and standard deviation while the qualitative variables were presented as frequencies and proportions.

RESULTS

During the period of one year from July 2019 to June 2020, a total of 4874 patients were admitted in emergency department of Civil Hospital Baijnath District Kangra (H.P.). The age of patients ranged from 7 years to 81 years with mean age of 38 years (SD= 9.2). Majority of patients were in age group of 20 to 50 years of life

Table 1: Age distribution of the patients

Age group	Number of patients	%
0-10	176	3.6
11-20	474	9.7
21-30	879	18.0
31-40	1574	32.3
41-50	524	10.8
51-60	458	9.4
61-70	684	14.0
71-80	34	0.7
81-90	71	1.5

Table 2: Sex distribution of patients

Sex	Number of patients	%
Male	2432	49.9
Female	2442	50.1

Among 4872 patients, 2432(49.9%) patients were male and 2442(50.1%) patients were females with male: female ratio of 0.9:1.

Table 3: Surgical Emergencies at Civil Hospital Baijnath							
S. No.	Diagnosis	Male	Female	Total Number of patients attended	Proportion of total cases	Number of patients referred	Proportion of total referrals
1.	Trauma	555	218	773	15.9	161	13.1
2.	Acute Abdomen	795	1468	2263	46.4	700	56.9
3.	Urinary obstruction	683	345	1028	21.1	72	5.8
4.	Surgical infections	95	131	226	4.6	2	0.2
5.	Others	304	280	584	12.0	296	24.0
Total Number of patients		2432	2442	4874	100	1231	100

In our study, a total of 4874 patients were referred for surgical consultation and emergency treatment was given on case to case basis. 773 (15.9%) of patients were having history of trauma following road side accident, fall, assault or accidental injury. 2263(46.4%) patients had acute abdomen and 1028(21.1%) patients managed for urinary obstruction. 226(4.6%) patients were of surgical infections and 584(12%) other patients were managed for various diseases like upper gastrointestinal haemorrhage, acute limb ischemia, terminal stage of malignancy, late post operative complications, septic shock. Out of 4874 patients attended, 1231 (25%) of the cases were referred to tertiary health care facility.

Table 4: Distribution of trauma patients					
Trauma		Male	Female	Number of patients	Proportion
Head and neck		21	18	39	5.0
Chest Trauma	Blunt trauma	36	17	53	6.9
	Penetrating trauma	2	0	2	0.3
Abdominal Trauma	Blunt	9	5	14	1.8
	Penetrating	0	1	1	0.1
Limbs	Upper limb	98	50	148	19.1
	Lower limb	118	71	189	24.5
Others		271	56	327	42.3
Total		555	218	773	100.0

Out of 773 patients of trauma, 39 (5%) patients had head and neck injury and managed accordingly, out of which 21(53%) patients of these were referred to higher centre for neurosurgical consultation. 53 (6.9%) patients out of 773 had blunt trauma chest and intercostal chest tube was inserted in 32 patients. One patient was referred to higher centre due to polytrauma. Both patients of penetrating trauma chest (0.1%) were referred for Cardio Thoracic Vascular Surgery (CTVS) consultation at higher centre. 14 (1.8%) patients were having blunt trauma abdomen out of which 10 patients were referred for further management. Only one patient had penetrating trauma abdomen and referred to higher centre after primary management. Limb trauma constituted about 337 patients including 148 (19.1%) patients of upper limb trauma and 189 (24.5%) patients of lower limb trauma. 327 (42.3%) patients were having other trauma like spinal trauma, urogenital trauma, pelvis, and scapula.

Table 5: Acute abdominal emergencies				
Disease	Male	Female	Number of patients	Proportion
Gall bladder or Bile duct Disease	219	1189	1408	62.2
Acute Biliary Pancreatitis	22	54	76	3.4
Perforation Peritonitis	12	0	12	0.5
Liver abscess	38	2	40	1.8
Acute Intestinal Obstruction	20	4	24	1.1
Acute Appendicitis	118	59	177	7.8
Incarcerated and Strangulated inguinal Hernia	3	0	3	0.1
Others	363	160	523	23.1
Total	795	1468	2263	100.0

1408 (62.2%) patients out of 2263 had gall bladder or bile duct disease in form of Gall stone disease or its complications, acute cholecystitis, acute cholangitis and gall bladder

malignancy. 326 (23.1%) patients were referred either due to refusal for admission and secondary opinion or complications requiring urgent surgical intervention. 177 (7.8%) patients had acute appendicitis out of which 58 (32.7%) were referred due to generalised peritonitis or refusal. 76 (3.4%) patients had acute biliary pancreatitis and 26 (34.2%) were referred due to severe pancreatitis and requiring ICU admission. Further Liver abscess comprised of 40 (1.8%) patients, out of which 2 patients were referred, and acute intestinal obstruction was diagnosed in 24 (1.1%) patients, where 20 were referred. 3 (0.1%) patients had strangulated hernia and all three patients were referred to higher centre for further management. 523 (23.1%) other patients were having other abdominal emergencies like acute gastritis, diverticulitis, mesenteric ischemia, ruptured ectopic, volvulus and idiopathic.

Table 6: Urinary obstruction

Disease	Male	Female	Number of patients	Proportion
Urinary stricture	4	0	4	0.4
Urinary tract stones	448	343	791	76.9
Prostatomegaly	211	0	211	20.5
Others	20	2	22	2.1
Total	683	345	1028	100.0

4 (0.4%) patients in our study had urinary stricture and 791 (76.0%) had urinary tract stones. Prostatomegaly was present in 211 (20.5%) patients of urinary obstruction and 20 (2.1%) had other causes like constipation, urinary bladder carcinoma, foreign body, urinary tract infections.

DISCUSSION

Emergency management system is not well developed in India and there is a lack of organised emergency health care system in peripheral health care. The primary health care system rests on four pillars i.e. community participation, inter-sectoral coordination, use of appropriate technology and equitable distribution of resources.[6] There is, however, gross disparity between availability of emergency services in various parts of the country. In Himachal Pradesh, 80% of the hospitals are under Government sector while the rest are in private sectors which include private clinics and nursing homes. The emergency services are, nevertheless, taken care of in government sector only. As per the Rural Health Statistics of India 2013 report, there are 16 Community Health Centres and 6 Civil Hospitals which serve as First Referral Units (FRU) in our district which provide specialised medical care in the form of Surgeons, Physicians, Pediatricians, and Obstetrics & Gynaecologists. However, only 70% of the posts are filled every year against the sanctioned posts.[7]

This study was conducted in a first referral unit over a period of one year. Most of the cases were in the age group of 21-50 years, while the propensity for surgical emergencies was equal among both the genders. This is not in concordance with a study conducted by *Verma et al.*[8] Memon et al reported equivocal result of male to female ratio of 2.3:1 in 585 non traumatic acute abdomen patients. The age group which was most affected was21-30 years age group which constituted almost 50% of the trauma patients.[9]In our study most of surgical emergencies were not referred. Possible explanation could be that in case of trauma, surgeons and other casualty medical officers followed referral principles at the first referral units. In the same fashion non trauma patients directly came to our institute due to availability of diagnostic investigations and manpower at secondary health care level.

In our study, we found that out of 4874 surgical emergencies attended, 46.4% of the constituted acute abdomen, followed by urinary obstruction (21.1%) and trauma (15.9%). Out of all the acute abdomen emergencies handles, 23.1% patients were referred either due to refusal of taking the treatment or for the want of second opinion.

This is could be due to the unawareness in the community regarding the availability of the facilities available that could have, otherwise, prevented unnecessary referral to the tertiary care hospital, while the rest were referred because they had developed generalised peritonitis which needed immediate attention at tertiary care hospital. Other surgical emergency cases like strangulated hernia and severe acute pancreatitis which require ICU admission also need to be referred to the tertiary care hospital. However, our findings were similar to Masood et al who reported that only 3% patients were admitted for observation while the rest were either referred or treated on outdoor basis.[10] Trauma cases such as Head and neck injuries, of which more than half of the cases were genuinely referred because they need neurological as well as neurosurgical consultation, while rest of the cases of trauma such as penetrating injuries and multiple injuries that needed cardio-thoracic vascular surgery consultation were referred after stabilising them at the FRU. None of the emergencies presenting with urinary obstruction were referred to higher health care facility.

In this scenario proper allocation of resources to handle such tremendous work loads is of paramount importance. a clear insight to the exact pattern of these admissions have and, also in future, will facilitate deputing adequate trained staff capable of handling the particular surgical emergencies. This may further help in reducing the out-of pocket expenditure of the people seeking the health care in first referral units.

CONCLUSION

While preparing for emergencies, health systems should as much as possible follow the five interwoven strategies defined by WHO for health service delivery to become more people-centred and integrated. These are (a) engaging and empowering people and communities; (b) strengthening governance and accountability; (c) reorienting the model of care; (d) coordinating services within and across sectors; and (e) creating an enabling environment (1). Each health system is situated within a context that influences every part of it, and the context itself is shaped by the people for whom the health system has been designed. Thus, it is important to address context-specific barriers to equity, such as the inability of local government to reach people, horizontal and vertical fragmentation in health programmes, cultural and gender barriers, lack of representation of marginalized groups, and radically decentralized and pluralistic health systems. For this reason, it is vital for government and the health sector to engage with the local community and work with it to co-design and implement interventions – otherwise, any intervention may be futile or even counterproductive. PHC can support communities to build their societal resilience.

Infrastructure and supplies are integral to service delivery and the development of resilient primary care, and investments must be made in this area to guarantee good quality services.

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