ORIGINAL ARTICLE

AUDIT OF SURGICAL EMERGENCY AT LAHORE GENERAL HOSPITAL

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Background: Audit is a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the review of change. Objective of this study was to report the patterns of admissions in our surgical emergency and the comparison of results with the available data **Methods**: All the patients presented in the surgical emergency of Unit III from April to December 2014. Detail of all surgical patients admitted during the period was recorded from the emergency entry register maintained by the staff nurse. Demographic data, mode of admission, diagnosis and outcomes were recorded on a *pro forma*. **Results:** Total number of patients were 11140, out of which 5998 (53.8%) were males and 5142 (46%) were females, mostly were between 18–56 years of age. Emergency surgeries were performed in 650 of our cases whereas the rest of the patients were managed conservatively, treated at minor operation theatre (MOT), referred to their concerned emergencies or discharged. The most common presentation was road traffic accidents followed by trauma, urological emergencies and intestinal obstruction. Overall mortality was estimated as 1.5%. **Conclusions:** Surgical audit should be made a regular practice to serve as an important and effective tool of accountibilty on clinical outcomes and self evaluation and in improving the quality of our health care system.

Keywords: Surgical Audit, surgical emergency, outcomes
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INTRODUCTION

"Clinical audit is a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the review of change. Aspects of the structure, process and outcome of care are selected and systematically evaluated against explicit criteria. Where indicated changes are implemented at an individual, team, or service level and further monitoring is used to confirm improvement in healthcare delivery." (NICE, 2002).[1]

Prof David Johnson defined audit as "means of quality control for medical practice by which the profession shall regulate its activities with the intention of improving overall patient care".[2] A structured programme of surgical audit is fundamental to the provision of quality health care. Clinical audit should be an integral and the routine part of the health care.

The term audit is usually associated with accounting and implies the numerical review by an outside investigator for the prevention of fraud but in the clinical setting it is the collection of the data for the purpose of setting professional standards, assessing clinical performances and modifying the clinical practice.[3]

A structured programme for the provision of surgical audit is fundamental to the provision of quality health care. Clinical audit should be integral and the routine part of the healthcare, not an exception or option item and that the results of the clinical programme must feedback into the service to give the improved quality of care for the patients. Clinical audit was introduced by the Ernest Hey Groves (1908) in Great Britain and the Ernest Amory Codman (1910) in United States.[4] In 1987 the process of audit was reviewed and the software on clinical data was designed to collect, verify and report audit data.

In Pakistan a structured programme for the clinical audit is not available except in very few institutions. It is not a regular practice to conduct surgical audit routinely therefore proper clinical data is not available which can be reviewed and analysed in terms of morbidity, mortality and other clinical outcomes in order to improve the overall clinical practice.

In our study due the lack of clinical data on surgical audit especially surgical emergency audit where no comparative figures were available from different institutions, we had no option than to rely on the limited data available for comparison.

MATERIAL AND METHODS

This audit was conducted in the surgical emergency of Unit III, Lahore General Hospital from April to Dec 2014. Unit III covers the emergency twice a week, plus one special Sunday once every 3 weeks. Lahore General Hospital is located on the main Ferozepur road, and on average receives 1500 patients in its emergency department daily.

After the medico-legal formality patient is referred to the concerned emergency for further

evaluation and treatment (Triage method is followed which is based strictly on the patient's condition). Referral time is not more than 2–3 minutes.

The surgical emergency on average receives 140–180 patients. Surgical patient of road traffic accidents (RTA) who is seriously injured and bleeding is referred to minor operation theatre (MOT) for stitching and dressing. Serious blunt trauma and other injuries requiring surgical intervention are referred to the surgical operation theatre. A pure surgical case after proper assessment and initial resuscitation is sent to surgical operation theatre (SOT) later and then from there to the surgical ward where the patient is kept for another few days or weeks according to his/her condition.

Details of the admissions were noted from the register maintained by the staff nurse and the paramedical staff at the main counter which records patients demographic data, date and mode of admission. Details of the surgical emergency procedures were recorded from two other registers maintained by the paramedical staff, one at the MOT and the other at the SOT.

Other than this a detailed pro forma was maintained during the study period where complete details of patients' demographics, mode of admission, treatment, and final outcome were recorded. Data was entered and analysed using SPSS-16.

RESULTS

During the eight months study period, a total of 11140 patients presented through accident and emergency department (A & E), Surgical Emergency Unit III. Out of these 5998 (53.8%) were males and 5142 (46%) were females. The age distribution of the patients shown in table-1.

Out of 11,140 patients admitted during the study period majority of the patients who presented with minor bruises and sprains during road traffic accidents were discharged after making them pain free and on discharge medications if required. These included mostly the road side pedestrians or children who tripped while walking and other trivial injuries.

About 2995 patients came with bleeding lacerations, contusions, opened wounds and were referred to MOT for stitching and dressing after which they were discharged on antibiotics and analgesics as required.

The number of urological emergencies reported was 798, these patients came with severe renal and ureteric colic with the complaints of urgency, hesitancy and burning micturition. Most of these included the female patients and patients with the overlapping symptoms of pelvic inflammatory diseases (PID) and urinary tract infections (UTI) mimicking appendicitis. These patients were given narcotic painkillers and were managed conservatively and required good counselling. Serious cases were referred to the urological emergencies, rest were asked to come in the concerned outpatient departments for proper treatment. Fractures of all nature which varied from simple hairline to complex, comminuted fractures were referred to the orthopaedic department after the initial management and the radiographic investigations. There were certain cases which involved multiple fractures, along with the soft tissue and the vascular injury. Such patients were referred straight to the SOT to get managed by multidisciplinary teams.

Head injuries resulting due to the road traffic accidents or as a consequence of fall from 5–8 feet after the resuscitation were referred for the CT scan immediately, which included concussions, extradural haemorrhage and subdural haemorrhages. These were referred to the neurosurgical emergency for further management.

Out of 11140 patients, 650 patients were operated in SOT. Most of these patients underwent exploratory laparotomies for various presentations like nonspontaneous ileal perforations, tuberculosis and typhoid perforation. They presented with symptoms of intestinal obstruction, treated as surgical emergency, were given broad-spectrum antibiotics coverage, nasogastric suction, correction of haemodynamic and electrolyte imbalance.

According to the condition of the patient, some underwent exploratory laparotomies in SOT and others were shifted to inpatient facility where they were observed and placed on next elective list. Among these exploratory laparotomies, patients of blunt abdominal trauma, firearm injuries and other injuries of serious nature resulting in splenic, liver and duodenal injuries were immediately referred to SOT after the initial management.

The most common cause of acute abdomen was intestinal obstruction commonly due to tuberculosis and typhoid perforation followed by the acute appendicitis, PID (mimicking appendicitis) in females, perforated duodenal ulcers and peritonitis. There were 397 cases of obstructed hernia, mostly as delayed presentation of inguinal hernia which included males between 40–50 years of age.

Table-1: Patients by Age Groups

Age group (years)	Number (%)	Percentage
12–20	1189	10.7%
21–30	2179	19.6%
31–40	2757	24.7%
41–50	2911	26.1%
51–60	1102	9.9%
61–70	934	8.4%
>70	68	0.6%
Total	11140	100%

Table-2: Month wise distribution of admissions in A & E

Months	Male	Female	Total
April	679	600	1279
May	702	590	1292
June	687	613	1300
July	589	538	1127
Aug	655	566	1221
Sep	685	600	1285
Oct	697	578	1275
Nov	617	562	1179
Dec	687	495	1182
Total	5998 (53.8%)	5142 (46.2%)	11,140

Table-3: Admissions in A & E

Road traffic accidents(total)	4869	**Blunt abdominal Trauma**	159
Head injuries (total)	1499	**Blunt Chest Trauma**	125
Intestinal Obstruction	952	**Firearm Injuries**	137
Urological emergencies	798	**gangrene**	203
Acute appendicitis	605	**abscesses**	159
Biliary colic	450	**Testicular Torsions**	255
Duodenal perforations	404	**Burns**	128
Obstructed Hernias	397		

Table-4: Outcome of the patients

Discharged without referring to MOT	3143
Operated	650
MOT (stitching and dressing)	2995
Conservatively managed and discharged	1270
Referred to neurosurgery, orthopaedics and urological emergency	3082

DISCUSSION

The pattern of diseases varies with the geographical areas, in different races and the age groups and in the people with the different occupations. Other factors could be environmental as well as the genetic. Very few studies are available on the surgical audit locally for the comparison of pattern of admissions in surgical emergency in contrast to the developed world where a very successful national system for audit and the comparative audit services are available. Simple written methods may still be appropriate and once the basic clinical data is recorded, then it has to be transferred to the computer.[5,6]

In our study the decrease in the patients' admission were observed in the months of July-Aug and second dip in Nov due to *Eid-ul Fitr* and *Eid-ul Azha*. Highest number of patients was recorded in the summer compared to the winter season; this corresponds to the Ali *et al* clinical audit.[4]

Our results showed that RTA is the prominent cause of injuries seen in our centre. The high prevalence of RTA, 49% is probably because of the location of our centre close to the major highways, followed by the soft tissue injuries and fractures as the most common injuries due to the RTA. Pedestrians and the passengers have been reported to be the common victims of RTA as observed by Bhatti G *et al*.[7]

According to WHO, worldwide each year, 1.2 million people are killed and 50 million are injured in the road traffic accidents. The cost to low income countries is approximately 1% of their gross national product, which is more than the total developmental aid received by these countries. Road traffic injuries are ranked ninth among the causes of disability adjusted life years lost and developing countries account for over 80% of deaths globally due to the road traffic accidents. The morbidity and mortality burden in developing countries is rising due to combination of factors, including rapid motorization, poor road and traffic infrastructure as well as the behaviour of the road users.[8] This contrasts with technologically advanced countries where the indices are reducing.[9,10]

Trauma like any other emergency is most commonly reported entity which included trauma due to RTA, assault, firearm injuries and fall from the height. Head injuries resulting from trauma included concussions, extradural haemorrhage, subdural haemorrhage, and depressed fractures. They were referred to the neurosurgical emergency after the initial management and the CT scan. Mariira-Mukasa showed that over a two year period 73.5% out of 5907 admissions were due to trauma.[11] Trauma was leading cause of death for all surgical admissions in that study. In our eight month study 71.8% of the patient's admissions in total were due to trauma.

Among all the cases exploratory laparotomies were the most commonly performed procedure followed by appendectomies and abdominal hernia repairs. However Bhatti G *et al* and Qureshi *et al* reported appendiceal diseases most common in their audit. Inguinal hernias accounted for approximately 82% of 453 obstructed hernias presented to us in the surgical emergency, whereas Shaikh R *et al*[12] reported 15.9% hernia cases, 85.5% of them being inguinal. Manzar S[13] on the other hand reported overall hernia incidence of 9% with 84% inguinal hernia. Intestinal obstruction accounted for 11.4% of all the cases. The increasing number of cases of non-traumatic ileal perforations were seen which were mostly due to typhoid or tuberculosis. In this study the most common cause of secondary peritonitis due to gastrointestinal tract perforations was typhoid which was found in 1267 of our cases; this was followed by appendicitis and duodenal perforation. Chatterjee H too reported typhoid as the most common cause of perforations in two separate studies.[14]

Specific patterns were also noticed like: biliary colic presented late in night, on average similarly the increasing number of cases of ureteric and renal colic in the evening. Acute appendicitis usually presented in the morning.

As far as the outcomes were concerned 28% of our cases were discharged on medications and reassurance without being referred to MOT which

included ureteric, renal, biliary colic, sciatica pain, PID and other nonspecific causes. About 2995 (26.8%) were referred to MOT for stitching and dressing which mostly included males between age group 23–35 years. Out of these 650 cases were operated in SOT which included exploratory laparotomies for non-spontaneous ileal perforation, firearm injuries, blunt abdominal trauma and appendectomies. Overall mortality in our study was estimated to be 1.5% which is almost comparable to Bhatti *et al* report of 1.2% mortality in the audit of 855 cases.[8] McGuire *et al* report of 1.8% in the audit of 44,603 consecutive major surgeries.[15] The mortality rate 5.1% reported in Scottish surgical mortality after emergency surgery is high compare to our audit.[16]

After reviewing the local literature, dire need is felt for the local surgical audit which can be used as a source of clinical outcomes for analysis and comparison so that the pattern of admissions and the disease spectrum can be analysed for better planning and surgical outcomes. It is therefore high time now that a proper structured surgical audit on a regular basis be made compulsory for good surgical practice as it holds benefits for both the patients and the clinicians. Proper training sessions for trainees be carried out in this regard to make them familiar with this concept and to support research and development in the clinical practice.

CONCLUSION

Our study showed that the commonest cause of admission was road traffic accidents followed by intestinal obstruction and urological emergencies. There is need to have more detailed studies regarding the pattern of diseases admitted in surgical emergencies in tertiary care hospitals in order to improve the quality of healthcare system.

Audit should be carried out on regular basis and should be formally introduced as a mandatory activity to provide insight and feedback to surgeon's performance and to serve as a tool of accountability on clinical outcomes which can effectively improve the overall patient care in surgical emergencies.

REFERENCES

1. National Institute for Clinical Excellence. Principles for Best Practice in Clinical Audit. Oxford, Radcliffe Medical Press, 2002.
2. Bulstrode CJK, Russel RCG, Williams NS. Surgical audit. In: Bailey & Love's Short Practice of Surgery. 23rd ed. London, UK: Arnold;2000:1307–13.
3. Sanazaro PJ, Worth RM. Concurrent quality assurance in hospital care, report of a study by private initiative in PSRO. N Eng J Med 1978; 298(11):1171–7.
4. Ali SA, Soomro AG, Tahir SM, Memon AS. Prospective basic clinical audit using minimal clinical data set. J Ayub Med Coll Abbottabad. 2010;22(1):58–61.
5. Campbell WB, Souter RJ, Collin J, Wood RF, Kidson IG, Morris PJ. Auditing the vascular surgical audit. Br J Surg 1987;74(2):98–100.
6. Ruckley CV. Mechanisms of Audit: discussion paper. J R Soc Med 1984;77(1):40–4.
7. Bhatti G, Haider J, Zaheer F, Khan SQ, Pirzada MT, Khan TM. Surgical Audit of Unit II, Department of Surgery, Abbasi Shaheed Hospital, Karachi. Ann Abbasi Shaheed Hosp Karachi Med Dent Coll 2006;11(2):54–8.
8. Nantulya VM, Reich MR. The neglected epidemic; road traffic injuries in developing countries. BMJ 2002;324(7346): 1139–41.
9. Oskam J, Kingnama J, Klasen HJ.The Groningen Trauma Study. Injury patterns in a Dutch trauma center. Eur J Emerg Med 1994;1(4):167–72.
10. O'Neill B, Mohan D. Reducing motor vehicle crash deaths and injuries in newly motorizing countries. BMJ 2002;324(7346):1142–5.
11. Masiira-Mukasa N, Ombito BR. Surgical admissions to the Rift Valley Provincial General Hospital, Kenya. East Afr Med J 2002;79(7):373–8.
12. Shaikh R, Jeddi MF, Ali G, Iqbal SA. Patterns of diseases in a surgical unit at Layari General Hospital, Karchi. Med Channel 2000;6(2):29–31.
13. Manzar S. Inguinal Hernias-Incidence. Complication and management. J Coll Physician Surg Pak 1992;2(1):7–9.
14. Chatterjee H, Jagdish S, Pai D, Satish N, Jayedev D, Ready PS. Changing trends in outcome of typhoid ileal perforations over three decades in Pondicherry. Trop Gastrintestinal 2001;22(3):155–8.
15. McGuire HH, Horsley JS, Salter DR, Sobel M. Measuring and managing quality of surgery: statistical vs. incidental approaches. Arch Surg 1992;127:733–7.
16. Scottish Audit of Surgical Mortality. 2001 annual report Glasgow: SASM, Royal College of Physicians and Surgeons of Glasgow. Available at: http://www.sasm.scot.nhs.uk/REports/ 2001Report/SASM2001Report.pdf

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