



Surgical Emergency- A View of a Developing Institute

Authors

Hemchandra Singh Thoudam, T A Singh

JNIMS Imphal Manipur

Abstract

Background: *Emergency Surgery is continuing event in every sphere of the world. Prevalence of cases, Protocol of diagnosis, intervention, prognosis, and reporting system are variable at different institutes.*

The factors are due to topographical, socio-economic and institutional infrastructure

Objective: *The objective is to study a current randomise event in a single developing health institute of India and also to compare with the prevailing trend in other developed country institutes.*

The study is in a developing health institute of India. It is conducted at J.N. Institute of Medical Sciences, Imphal, Manipur

The continuous study is for a period of 2 years and 9 months from February 2014 to November 2016.

It is also aimed at the overall information from other hospitals along with the post discharge event, and surveillance for updating the institutional status and upliftment of health care delivery system in a region.

Method and Material: *All the patients who had undergone emergency operation are considered as subject of study. The cases are from casualty department and indoor ward.*

Patients from CTVS, Neurosurgical, Nephrology, Paediatrics, Plastic gastrointestinal surgery are not included in this study.

Operative Procedure: *Open operations are the method employed. Laparoscopic and endoscopic procedure are not considered*

Investigation: Routine examination of blood, plain X-Ray of chest and abdomen, ultrasonography, CT-Scan, and are the investigations done in regard to these procedures.

Prognosis: *It is recorded during hospitalisation and post discharge follow up period of one month.*

Post discharge follow up was conducted in Surgery OPD.

In patient mortality information are collected from hospital medical record office. Post discharge mortality figure are obtained from the readmitted cases in the same hospital

Result: *Out of the 1168 emergency operations appendectomy contributes 1104 (94.5%). Female preponderance is more than the male and incident rate is highest in the age group of 20 -30 years. It is followed by hollow viscus perforation and intestinal obstruction which is 33(2.8%), 11(0.9%) respectively.*

For the rest of the cases numbers are few and occur sporadically. So the figures are not sufficient for observation and result.

The average duration of hospital stay is 3 days

The number of death is 25 (2.84%), out of this 21 cases were in Surgical intensive care unit.

Number of death from Septicaemia is 9(3.6%). This mortality figure is obtained during the hospital stay.

Morbidity rate is measured in terms of prolonged hospital stay and complications.

114(9.7%) Patient had longer hospital stay. The average duration of hospital stay is 3 days. Total number of

death from all causes is 25(2.1%),9(3.6%) death rate were attributable to septicaemia.

Follow up cases were spontaneously turned up group. The total number of reported cases in surgical outpatient department was of 720 (63.2%) within one month period of discharge.

Conclusion: 1168 emergency operations were conducted in this institute Acute appendicitis is the commonest cause of acute abdomen, and emergency appendectomy is the operative procedure taking place everywhere. Here in this study the female preponderance occurs more frequently. The commonest incidence is found in the age group of 20-30 years. It is followed by hollow viscus perforation and intestinal obstruction respectively. For the rest of the cases the numbers are less for interpreting data. Total number of death is 25(2.1%) 32 cases were found to have associated with SSI, and of which 9 (3.6%) cases are attributable to septicaemia. The follow up information is obtained for surgical OPD and the number of which is 720 (63.2%). Due to the lack of up to date reporting and the surveillance system post discharge events could not be obtained. As a result of which systemic and generalised participation from the community is not well appreciated.

Keywords: Emergency Surgery, Surgery and Institutional status, Surveillance in developing region.

Introduction

Emergency Surgery is endless process in every sphere of the world.

Prevalence of cases, protocol of diagnosis, prognosis, and information system are variable.

As a consequence of which the result and feedback are also different.

The factors are the consequences of tropogeographical, institutional infrastructure and socio economic variables.

The overall information from the institute along with post discharge events and surveillance is essential for updating the institutional status and upliftment of health care delivery system in a region.

Aim and Objective

The objective is a current randomised study in a single developing health institute of india and also to compare with the prevailing trend in developed country institutes

The study is conducted at J.N.Institute of Medical Science, Imphal, Manipur for a period of 2 years and 9 months. Period is from February 2014 to November 2016

It is also aimed at the overall information from the hospital along with post discharge event and surveillance for updating institutional status and upliftment of health care delivery system in a region

Method and Material

All the patients who had undergone emergency operations are considered as subject of study. The cases are from casualty department and in patient wards. Operations conducted in OPD as minor procedure are excluded in this study.

Operative procedure: Open operations are the method adopted. Laparoscopic and endoscopic surgeries are not included.

Investigation

1. Routine examination of blood
2. Plain X-Ray of abdomen and chest
3. Ultrasonography and CT- Scan.

CT- Scan was avoided in pregnant women and young children.

All the patients were admitted in the surgical wards and / or Intensive Surgical Unit (SICU).

The respective data was collected from the wards during hospital staying period. Post discharge informations were obtained from the surgical OPD during follow up routine check up. Readmitted patient are from either casualty or OPD.

In patient mortality information are counted from medical record office of the same institute

Result**Table:** Case Distribution and incidence

Case type	Number	Incidence	Comment
1. Acute appendicitis	1104	94.5%	Female-664, Male-440 Female :Male=1.5:1
2. Hollow Viscus Perforation	33	2.83%	Duodenal perforation 18(54.5%) others 15(45.4%)
3. Institutional obstruction	11	0.94%	Post operative adhesion 7 (63.6)
4. Perianal abscess	5	0.42%	Numbers are few, no interpretation done
5. Breast abscess	4		Do
6. Splenectomy	3		Do
7. Acute retention of urine	3		Do
8. Colostomy	3		Do
9. Perforated gallbladder	1		Do
10. Post Cholecystectomy bile leakage.	1		Do
Total	1168		

General Information

Serial Number	Total Number of cases	Comment
1	Total Number of cases	1168 (admitted patients only)
2	Average Hospital Stay	3 Days
3	Prolonged hospital stay	114 (>7 days)
4	Mortality number	25 (2.1%) during hospital stay
5	Number of post operative check up patients	720(63.2%)
6	Patients died in ICU	9
7	Post discharge mortality information	Nil(No Documented events available , systems yet to establish)

Total duration of follow up was one month from the date of discharge. Out of the 1168 emergency operations appendectomy contributed 1104 (94.5%). It is followed by hollow viscus perforation and intestinal obstruction which is 33 (2.8%) and 11(0.9%) respectively.

In appendicitis the numbers of female and male are 664 and 440 respectively.

The number of cases in the group of 20-30 years is 387(35%).

The average duration of hospital staying is 3 days.

The number of death is 25(2.41%).Of which 21 cases were during the period of SICU.

32 patients developed surgical site infection (SSI), and number of death during SICU admission period was 9(3.6%) as a consequence of SSI (Surgical Site Infection)

This mortality figure is the total number of death during hospitalisation period.

Discussion

Appendicitis is the most common abdominal surgical emergency requiring appendicectomy. Female preponderance occurs, with a female to male ratio of 1.5:1 and the highest incidence is in the age group of 20-30 years. Other literature reported as 1:1.4 and the incidence rate of 10-20 years ^[3]

Diagnosis of acute appendicitis is predominantly a clinical one. In England laparoscopic procedure appendicectomy is on rise.^[6]

Due to ionising radiation hazard, CT Scan is not advocated in this study as a method of investigation in pregnant woman and the young children ^[2]. In view of the positive and negative appendicitis, specificity and sensitivity ultrasonography is considered as method of investigation ^[3].

Because of the low socio-economic system and poor institutional infrastructure ideal post operative outcome is not found.

The ideal operating room should at par the AIA (Architect Institute of America).

It should include an operative C-section room, interventional radiology room or cardiac Cath lab. [8]

SSI data sources should be ideally-microscopic reports; infection control rounds on nursing units, pharmacy reports for anti microbial use, temperature chart, operating room report of surgeries, use of post discharge surveillance method for SSS.

RED (Re Engineered Discharge) tool is use by the hospital staff 2-3 days after discharge and the follow up is done via telephonic call in the United States [Procedure Associated Module].^[18]

Here in this prevailing system post operative reporting and post discharge informations are not substantially available.

A substantial proportion of post operative complication and death occur during discharge. 23.6% mortality was during post discharge. Inclusion of post operative discharge events considerably affects hospital quality ranking and the outlier status designation. Quality improvement programme and research that do not consider post discharge outcome may offer incomplete information to hospitals, payers, providers and patients^[4]

SSI in associated with a mortality rate of 3% an 75% of SSI associated deaths are directly attributable to the SSI^[1].

Developed countries have set different monitoring bodies.

Clinical commission group (CCG) were created and systematic maintenance of hospital related data are maintained in England^[9]

48 hours and 30 days incidence of post operative mortality was 0.57% and 2.1% respectively. An emergency procedure within 48 hours was imparted approximately 8 times increase risk of mortality and 3 times increase risk of death in 30 days post operatively.^[11]

Postoperative ICU admission was associated with 2-3 times increased risk of 48 hours and 30 day post operative mortality.

7.8% in infected patients and 3.5 % in un infected patient die during post operative hospitalisation . Programme that reduce the incidence of SSI can substantially morbidity, mortality and reduce the economic burden for patients and hospitals. Patient who developed SSI are likely to have twice mortality rate, 60% more likely to spend time in an ICU and more than 5 times more likely to be readmitted to the hospital.^[11,12]

In 1989 according to the most cited report peri operative death directly contributed to aesthesia management is 0.0001% for generally fit persons.^[7]

The numbers of death in high, middle and low socio economic countries are variable in post emergency abdominal operations

Surgical mortality data are collected routinely in high income countries. Virtually no low or middle countries have outcome surveillance^[8]

Post operative nosocomial infection does not significantly increase the risk of mortality. To assess accurately the effect of nosocomial infection after 30 days 60% patients developed infection after discharge. In this study the compliance with follow up was 82%^[15]

Improvement of operating room, ventilation, sterilisation, availability of anti microbial prophylaxis, SSI remains a substantial cause of morbidity, prolonged hospitalisation and death^[8]

In equalities of health status were found in all countries and in terms of morbidity and mortality variables. It also reflected the factors about equalities according to the level of educational status of the region^[9]

SSI is associated with a mortality of 3% and 75% of SSI associated deaths are attributed to the SSI.^[1]

A comprehensive data collecting system in needed for improving clinical performance with ownership but not necessary data collection, resting with the surgical concerned. Recording of risk factors and death after discharge from hospital is essential, whatever data collection system is used.^[16]

Surgical mortality data are collected routinely in high income countries, yet virtually no low or middle income countries have outcome surveillance in place.^[8]

Mortality is three times higher in low-compared with high HDI (Human Development Index) countries even when adjusted with Prognosis factors.

Functioning System of Surgical Safety check list is less frequent in middle and low income countries.^[8]

The author of an article has mentioned half of the patients die in the ward during the first post operative week and the most frequent cause is sepsis (19.8%).^[17]

An article revealed post surgical mortality rate of 1.82%. Most common cause 35% who died in post operative period is sepsis.^[14]

A comprehensive data collection is needed for improving clinical performance with ownership but not necessary data collection, resting with the surgeon concerned. Recording of risk factors and deaths after discharge from hospital data collection is used^[16]

In equalities of health status found in all countries in terms of mortality and morbidity. It also reflected the factors about variation equalities according to the level of educational status of the region.^[9]

Conclusion

Acute appendicitis is the commonest cause for emergency abdominal surgery. The incidence occurs in the age group of 20-30 years. Female preponderance is more in compare to male, in the ratio of 1.5:1. The rest of the cases are few in incidence and occurs sporadically. So, the convincing information and data formation is not appropriate. Intra and perioperative mortality relations to anaesthesia are not significant. Nosocomial infection plays a minimal role in postoperative period. Surgical site infection is the commonest substantial event occurring in post discharge patients. Most of the important area in this study is to control infection due to SSI.

Because of the poor Socio-economic status, institutional infrastructure, and low educational level the overall events which are really occurring in this region cannot be taken into account. Most essential focus in this regard should be at improving HDI (Human Development Index) in order to promote health care delivery system.

Acknowledgement

The author acknowledge the scholars/researchers from whose article reference were quoted for the current study.

References

1. Award S. S, Post discharge surveillance Surgical Infection (Larchant); 13(4); (2012): 234-7.
2. Astagneau P et al. Morbidity and mortality associated with Surgical Site Infection: Result from 1997- 1999 INCISO Surveillance, INCISO Network Study Group J Hosp Infect 2005 ; 48:267-274
3. Addiss DG.N, Fowler BS et al. Epidemiology of appendicitis and appendectomy in the United States A M. J. Epidemiol 1990 ; 132:910 -25.
4. Bilimoria K Y ,Cohem M E et al. Effect of post discharge morbidity and mortality on comparison of Hospital Surgical Quality Ann Surg July 2010; 252(1): 183-190
5. Bruce J et al. Socio economic status and mortality Br. J Surg 88 issue 9; 2001:1157-1168
6. D J Humes et al. Acute appendicitis BMJ 2006;333:530-534.
7. Eichhorn J H et al. Prevention of intra operative anaesthesia accidents and related sever injurythrough safety monitoring (Anaesthesiology 1989; 70 :572-7)
8. Global Surg Collaborative Mortality of emergency abdominal surgery in high, middle and low income countries . BJS Vol. 103;Issue- 8, July 2016:971-988

9. Johan P et al. Socio economic inequalities in morbidity and the mortality in western Europe The Lancet 1997 June 7; 349 (9066):1655-1659
10. Krishnamoorthi et al. U.S and CT Protocol for the diagnosis of Paediatric Appendicitis. Radiology ;259 (Number 1 – April 2011)
11. K. Fecho et al. Post Operative after inpatient surgery: incidence Ther Clin Risk Mang 2008 Aug ; 4(4): 681-688
12. KB Kirkland et al. Infect Control Hosp. Epidemiol 1999;20:725-730
13. Maria R et al.(Surveillance of surgical Site infection at a tertiary care centre) Am. J. Infect. Cont Dec 2008 volm 36;8:732-738
14. Medina – Franco H et al. Mortality associated factors in major surgery: retrospective analysis Rev. Invest Clinic 2006 ,Jan – Feb ;58(1) : 9-14.
15. Platt R et al. Automated methods of surgical site infection. Emerg Infect Dis 2001; 7: 212-216
16. Russel at al. Systemic review of the quality of surgical mortality monitoring Br J Surg; 90 (5) May 2003 : (527-532)
17. Suan C et al. (pos operative mortality in a general hospital) Rev Esp Anaesthesiol Reanim, 1997 Aug –Sep ;44 (7) : 267 -272
18. US department of health and human services, The White House USA : The US Government's Official Web portal . post discharge surveillance Procedure associated module SSI, Jan 2017 9:(1-31).