ORIGINAL ARTICLE

Appraisal of General Surgical Admissions and Procedures, Influencing Training of Post Graduate Residents at Newly Developed Tertiary Care Teaching Hospital-Karachi

Imrana Zulfikar[1], Farhan Zaheer[1], Abdul Khaliq[2] and Farhat Jaleel[2]

ABSTRACT

Objective: To assess the pattern of surgical admissions and procedures which influence for the training of post graduate residents at a newly developed tertiary care teaching hospital of Karachi.
Study Design: Descriptive Cross sectional
Place and Duration of Study: This study was conducted in the Department of Surgery; Dow University Hospital affiliated with Dow International Medical College, Ojha Campus Dow University of Health Sciences from 1st June to 30th November 2013.
Materials and Methods: This study includes all general surgical admissions at Dow University hospital during six months period. Demographic data, mode of admission, diagnosis, procedure performed and hospital stay were collected from hospital records. Data was analysed with SPSS 17.
Results: There were total 306 surgical admissions recorded of which 194 (63.4%) were elective admissions and 112 (36.6%) were admitted through emergency. There were 160 (52.3%) female and 146 (47.7%) male patients with mean age of 41.3 ± 15.01 years. Mean hospital stay was 2.7(±2.6) days. The most common diagnosis in elective admissions was cholelithiasis in 70 (36%) patients followed by 26 (13%) patients of inguinal hernia. Less frequent admissions were of carcinoma breast (3%), thyroid disease, testicular carcinoma and gynaecomastia comprising of 1% admissions. Admissions through emergency were most common for acute appendicitis / lump in 31 (27%) patients, acute cholecystitis in 25 (22%), and acute pancreatitis in 12 (10.7%) patients. Commonest procedures performed were laparoscopic cholecystectomy in 70 (27%) patients followed by hernia repair in 42 (16.4%) and emergency laparotomy in 20 (8%) patients.
Conclusion: The gall stones and hernia were the leading cause of elective and acute appendicitis as commonest emergency surgical admission. Laparoscopic cholecystectomy was the leading surgery performed electively. This pattern underscores the deficiency of other major disease burden. Resident must be exposed to other important diseases as well as their surgeries during their training. At present the institute offers rotation in orthopaedics, neurosurgery and urology. It should also be considered that internationally general sugery is further sub specialised as colorectal surgery, hepatobiliary, breast and thyroid /endocrine surgery. Rotations at subspeciaties and Electives at other affiliated institutes can solve the current situation.

Key words: Surgical Admissions and Procedures, Post Graduate Training, Tertiary Care Teaching Hospital, Elective Admissions, Emergency Admissions

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INTRODUCTION

The fundamental purpose of a surgical training program in a tertiary care hospital is to ensure that at the end of training, the trainees become competent medical professionals and able to deliver quality health care[1].

A very important determinant of comprehensive training is the exposure to the variety of diseases and volume of surgical procedures that the trainees encounter during their training.

Previously, the training in general surgery was extensive and it was not divided into sub-specialties .The trainee surgeons used to have maximum exposure of all fields, such as trauma, hepato-biliary, colorectal and breast surgeries[2]. This vast exposure of surgical patient and procedures ensured maximum learning opportunities for trainee surgeons.

1 Surgical Unit 1, Civil Hospital and Dow University of Health Sciences, Karachi, Pakistan.

2 Dow International Medical College, Dow University of Health Sciences, Karachi, Pakistan.

Correspondence: Dr. Imrana Zulfikar, Surgical Unit 1, Civil Hospital Karachi, Dow University of Health Sciences, Karachi, Pakistan.

Email: azizimrana@hotmail.com

But with advances in surgery there has been shift from traditional surgical procedures to minimally invasive techniques and sub speciliazation[2]. As a result, there is change in workload of residents in general surgery. This change in exposure has resulted in limited surgical skills and experience by residents as reported in literature[3]. As a consequence there is dissatisfaction amongst the residents with regard to exposure to patients and learning opportunities available to them.

Hence, there is a need to constantly review the surgical training program and ensure that during their training, residents have adequate exposure to a diversity of conditions requiring to meet the learning outcomes. This is not a drawback in a well established tertiary care public hospital where exposure to wide range of patients is available but the situation may differ in case of a newly developed tertiary care private setup.

Dow University Hospital (DUH) is a newly established tertiary care facility affiliated with Dow International Medical College, Dow university of Health sciences. Being run as private hospital and located in peripheral area of city, the disease burden encountered here is considerably low from Civil Hospital Karachi which is another well established tertiary care public hospital, affiliated with the Dow University.

Dow University Hospital (DUH) is also accredited university for post graduate trainings in general surgery. At present the surgery training includes basic laproscopic procedures and general surgery procedures. With the development of new sub-specialties like breast surgery, hepatic biliary surgery , colorectal , bariatric surgery and minimally invasive techniques, the residents are less likely to be exposed to a variety of patient in general surgery. Hence there is need to assess the disease burden in Surgical ward in order to develop structured training program and efforts must be put in for electives, rotations and deficient areas of trainings. The purpose of this study is to identify the pattern of surgical admissions and operative procedures in surgical ward. This will help us to determine the role of surgical admissions and procedures as these are integral learning resources for trainees during their residency program.

In this study, pattern of surgical admission has been assessed. In order to achieve it, we obtained the data of admissions from the hospital and used spss to analyze it. Demographic data, mode of admission, diagnosis and procedure performed were collected from hospital records.

MATERIALS & METHODS

This descriptive cross sectional was conducted in General surgery Unit at Dow University hospital affiliated with Dow University of Health Sciences. All the admissions from 1st June 2013 to 30th November 2013 were recruited in this study. The department of surgery is 50 bedded, which includes general ward, semi private and private rooms as well as fully equipped 15 bedded Intensive Care Unit. Department provides 24 hour care to all general surgery patients. Information regarding demographic data, mode of admission, diagnosis, procedure performed and hospital stay were collected in a pre tested, structured Proforma, from hospital records.

An average number of 40 residents in surgical wards and various levels were assessed for exposure to different cases in this study. All the surgical patients admitted and managed at Dow International Medical College were diagnosed and evaluated for this study. The post graduate residents were also involved in the treatment of these patients, and, operations lead them to develop extensive skills as a postgraduate trainee. The data of patients was obtained from surgical ward managed by residents. All the information taken from the records was obtained by the permission of the concerned authorities of the Dow University.

Data was analyzed with SPSS 17. Descriptive statistics were used to analyze data. Mean and standard deviation (SD) were used for quantitative variables while frequency and percentage for qualitative variables.

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008. Informed consent was obtained from all patients for being included in the study.

RESULTS

There were 306 surgical admissions over the period of six months out of which 194 (63.4%) elective admissions and 112 (36.6%) were admitted through emergency. There were 160 (52.3%) female and 146 (47.7%) male patients. The mean age of patients was 41.3 ± SD ranging from 2 to 81 years. Mean hospital stay was 2.7(± 2.6) days.

The most common diagnosis was cholelithiasis in elective admissions, which was documented in 70 (36%) patients followed by 26 (13%) patients of inguinal hernia. Less frequent admissions were related to carcinoma Breast, thyroid disease, testicular carcinoma and gynaecomastia which comprised of 1% of admissions respectively. All elective admission are shown in Table 1.

Table 1: Pattern of diseases of elective admissions during the study period (n=194)

Diagnosis	Frequency	Percentage (%)
Symtomatic Gall stones	70	36
Inguinal hernia	26	13
Ventral hernia	12	6
Patent Processus Vaginalis	8	4
Carcinoma breast	5	3
Thyroid surgery	1	1
Gynaecomastia	1	1
Testicular tumor	2	1
Perianal (diseases hemorrhoids, fistula, fissure)	34	18
Local procedures (toe nails, avulsions; cysts, lipomas excision)	35	18

Admissions through emergency were mostly of acute abdomen comprised of acute appendicitis appendicular lump in 31 (27%) patients, acute cholecystitis in 25 (22%) and acute pancreatitis in 12 (10.7%) patients. Peritonitis and intestinal obstruction were documented in 13% and 7% respectively. All emergency admissions are shown in Table 2.

Table 2: Pattern of diseases of emergency admission during the study period (n=112)

Diagnosis	Frequency	Percentage (%)
Acute cholecystitis	25	22
Acute pancreatitis	12	11
Appendicular appendicitis / lump	31	27
Obstructed / strangulated hernia	5	4
Abscess	16	14
Acute intestinal obstruction	8	2
Peritonitis	15	11

Commonest procedures performed during this period were laparoscopic cholecystectomy in 70 (27%) patients followed by hernia repair in 42 (16.4%) and emergency laparotomy in 20 (8%) patients respectively. All procedure including local procedures is shown in Table 3.

Table-3: Procedure done during the study period by general surgical team (n=255)

Procedure	frequency	Percentage (%)
Laparoscopic cholecystectomy (5 converted to open cholecystectomy)	70	27
Herniotomy / Hernioplasty (inguinal/ventral hernia)	42	16.4
Appendectomy	25	10
Modified radical mastectomy (MRM)	5	2
Laparotomy (included perforated Gall bladder (5), Ruptured liver abscess (4) and Colon carcinoma (3)	20	8
Thyroid surgery	1	0.5
Subcutaneous mastectomy	1	0.5
Orchiectomy	2	1
Perianal surgeries	24	9
Local procedures*	35	14
Minor procedures#	30	12

* Local procedures included nail excision, cyst excisions
# Minor procedures included incision drainage, debridement, lipoma, fibro adenoma done in general anesthesia

DISCUSSION

In our study, the most common elective admissions were symptomatic gall stones (36%), and, laparoscopic cholecystectomy was the most common performed procedure. Inguinal Hernia (13%) was the second major most common diagnosis. Emergency admissions comprised acute appendicitis undergoing appendectomy.

It is already an established fact that Laparoscopic cholecystectomy is associated with few complications and has largely replaced open technique. This transformation from conventional to laparoscopic techniques has effected the training strategy and education principles of residents

However our results indicate that apart from laparoscopic cholecystectomy no other laparoscopic procedure was performed. Deficiency of financial resources by patient and inadequate exposure to advance laparoscopic techniques may be the reason for absence of advance laparoscopic procedures . Exposure to Basic and advance laparoscopic procedures are necessary requirements for surgical training program.

Our results indicate that the frequency of admission for tumor surgery is low as compared to other surgeries. Along with factors mentioned above , lack of awareness in patient regarding disease and facilities available at this hospital may have contributed to this observation. This concern can be addressed by organizing seminars and patient education programs at hospital and community level to create awareness regarding diseases and care provided at this hospital. Vascular surgery being an established subspecialty is not practiced in general surgery unit ; which is the main reason for its absence. Trauma surgery is also not performed as there is no medico legal cover available, however a trauma Centre is under development and will cater the need of surgical resident, which will be presented in future and its role for training will be discussed.

Dow hospital is a purpose build tertiary care facility and the number of admissions is on steady rise. It is

a newly developing system which can be helpful in directing focused education and training practices from the initiation. As multiple facilities (including hepatobiliary with endoscopic interventions and fully equipped radiology with interventionist radiologist support) are in one place, it can be helpful for comprehensive and focused training for residents[8-9]. Cost of procedures is a limitation factor in catering to lower social strata especially in private setups. DUH being functional as private facility, is equipped with excellent and extensive resources for learning very minor details of surgeries as well as patient management. Most of the consultants are available for consultation and supervision of residents.

A six month audit from Civil Hospital Karachi regarding pattern of surgical admission showed that the majority of patients i.e. 114 (22.8%) had gastrointestinal related diseases followed by hernia related diseases 94 (18.8%), hepato-biliary diseases 69 (13.8%), ano-rectal problems 37 (7.4%), abscesses 35 (7%), trauma 28 (5.6%), thyroid diseases 20 (4%), testicular and scrotal related problems 19 (3.7%), breast diseases 17 (3.4%)[10]. The pattern of admission in this study is on contrast to our study and these are representative of a pattern of a well-established tertiary care public hospital which provides health care facilities to the patients of Sind and Baluchistan. Another study from Nawabshah showed that the commonest admissions and surgical procedures in general surgical unit were done for genitourinary (29%) diseases , where these diseases are prevalent and dealt by general surgery unit. Gastrointestinal diseases (22%) were the second commonest reason for admission[11]. A study from public care teaching hospital reported that Inguinal hernias accounted for the highest number of admissions i.e. 15.5% followed by acute appendicitis (11.9%) and chronic cholecystitis (10.7%). Trauma constituted 11.2% of the total admissions, including 46 (5.5%) cases of gunshot injuries[12].

It is evident that pattern in surgical procedures and admissions have direct implications for education and training. With the adoption of competency based training, the trainee is required to have adequate exposure to the diseases and procedures and acquire knowledge, skills and abilities to meet the learning objectives of the training program.

Changes in the pattern of admissions and procedures performed, the advent of minimally invasive techniques, limited emergency admissions has led to limited competency in newly trained residents and surgeons. To have sufficient competent surgeons to encompass today's needs, it is required to constantly overview admission policies and make changes according so that residents are equipped to provide superior patient care. It should be kept in mind that residents should have maximum exposure to common surgical problems and should be able to manage urgent situations. A competent general surgeon serves vital function, and we need to look deeply at our training program and question, that, is it adequate for preparing residents for their future role.

This is expected to influence health service strategies and education in future. Education must be integrated into working practice in order for trainees to achieve expected competencies and should match the learning objective of the teaching hospital. The importance of trained general surgeon is undeniable but there is a need for more focus training modules to enhance our surgeon experience for more targeted care and expertise. The potential benefits of an early and intense exposure of trainees to specialized fields must emphasize importance of interdisciplinary teams and collaborations will open new opportunities. Modifications in training to incorporate more subspecialties and surgical techniques will have a positive effect on having competent surgeons. It is evident from different studies that resident's exposure to different diseases during their training is not uniform all over the country despite CPSP recommending same curriculum at every institute. Apart from geographical location of institute but expertise of teaching faculty as well as institutional resources and the patients admitted also affect learning exposure of residents. There is need to work in this area and some form of common resources should be developed to standardize the clinical and operative exposure. Many of these issues are currently being addressed by the surgical professionals. Different surgical colleges and organizations address some of these issues by adopting online portals to broaden and standardize possible exposure. One such example is SCORE (SurgicalÊCouncil on Resident Education) in United States[13] and The Royal College ofÊ*Surgeons*Êof England (RCSE) launchedÊ*eSTEP*™ in 2001[14]. There is need of such kind of initiative by CPSP to standardize surgical training all over the country.

Limitation of the Study: This study evaluated the role of admission, diagnosis and surgical procedures as training resources for surgical trainees at a newly developed tertiary care hospital. A separate study is required to analyze how many surgeries were performed by residents at different level and what type of surgeries performed with their perceived confidence level and to give much more insight about quality of surgical training at the institute.

CONCLUSION

The gall stone and hernia was the leading cause of elective, and, acute appendicitis as emergency surgical admission. Laparoscopic cholecystectomy was the leading surgery performed. This highlights the deficiency of other major disease burden including training of open cholecystectomy. Postgraduate residents should be trained to deal other important diseases as well as their surgeries during their training. Electives at other affiliated institutes with DUH can help in solving the current situation.

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