

ORIGINAL ARTICLE

**“AUDIT OF ONE YEAR WORKLOAD
OF THORACIC SURGICAL TEAM AT
PESHAWAR”**

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ABSTRACT

Objective: The aim of this study was to audit all admissions for significant adverse events as well as to assess academic and research activities of our department during 2006.

Design: A descriptive audit comprising of surgical, academic and research aspects.

Place and Duration: Department of Cardiothoracic Surgery, Postgraduate Medical Institute, Lady Reading Hospital and Khyber Medical Center Peshawar from 1st January 2006 to 31st December 2006.

Materials and Methods: Data comprising of patients demographics, number and type of various surgical procedures, hospital stay, various complications and number of deaths that occurred were entered into database. A computerized record of all academic and research projects was kept. Data base analysis was carried out for determining morbidity and mortality.

During this period our department had 09 publications; presented 29 papers in various conferences; had four trainee fellows in thoracic surgery.

Results: Analysis of surgical audit showed 1440 procedures. Tube thoracostomy was required in 697 patients while elective procedures were 743. Elective thoracic procedures were 651 (87.61%) while elective cardiac procedures were 29 (3.90%). Various procedures performed

included, decortication 154 (20.72%), oesophagectomy 83(11.17%), Hydatid cystectomy 33 (4.44%), PDA ligation 18 (2.42%), pericardectomy 03 (.40%), lobectomy 34(4.57%), pneumonectomy 10 (1.34%), thoracoplasty 21(2.82%), while other thoracic and cardiac procedures were 42.53% and 1.48% respectively. Overall 30days mortality was 3.63% while morbidity was 4.57%.

Conclusion: Highest priority should be accorded to surgical audit to determine various risk factors for mortality and morbidity and ultimately to improve patient care. Moreover, all academic and research projects should be completed through mutual efforts of all teaching staff to achieve desired standards of teaching and learning Accountability of the medical profession can only be achieved through surgical audit. It is high time that this becomes a part of our ward routine and teaching programmes.

KEY WORDS: Audit, Thoracic surgery audit

INTRODUCTION

An audit of clinical practice is the analysis of data either prospectively or retrospectively to determine both quantitatively and qualitatively the work load of an institution or individual department. It includes numbers of admissions, patient demographics, various complications and mortality¹. The audit of a teaching medical institution or department is further subdivided into clinical, academic and research audit.

The society of Cardiothoracic Surgeons of Great Britain and Ireland was the first professional body to coordinate national data collection in the United Kingdom with the introduction of United Kingdom Thoracic Surgical Register in 1976 and the cardiac surgical Register in 1977². The evaluation of cardiothoracic surgical practice has been attended by an understanding of the influence of thoracic and nonthoracic factors on survival from thoracic surgery. Periodic clinical or surgical audit identifies risk factors for morbidity and mortality in addition to quantitative analysis of various surgical procedures³. It provides a valuable guideline for the better management of postoperative complications. Patient selection, preoperative assessment, perioperative and postoperative management are improved⁴. This represents good risk management policy for hospitals, individual units and their surgeons and will raise the overall quality of clinical care^{5, 6}. We present our one year audit from January 2006 to December 2006 covering clinical, academic and research aspects.. The audit was designed with the objective to determine significant adverse events in our thoracic surgical practice as well as to highlight academic and research activities of our department.

MATERIAL AND METHODS

The audit encompassed all procedures for significant adverse events of our department during last one year. Data collected included patient demographics (Age, gender, occupation); the number, type of emergency and elective surgical procedures, hospital stay, complications, mortality and were all entered into the database. We used the Database to determine the number of procedures and outcome factors for morbidity and mortality. Surgical audit meeting was conducted once monthly. Various complications and mortality factors were discussed.

Academic activities included monthly academic schedule in which various clinico-pathogenic conditions of academic interest were discussed. Every trainee was required to have presentation on allotted days of the week. The trainees were taught presentation and communication skills. Similarly Internet Journal Club, Internet Thoracic Imaging, Weekly radiology meeting and clinicopathological conferences were conducted and various cases of clinical interest were discussed. Knowledge of recent advances in thoracic surgery was obtained through Internet Journal Club and Internet Thoracic Imaging.

Moreover, Surgical trainees and house surgeons were trained on bedside clinical examination and presentation. Preparatory course for final thoracic surgery fellowship examination were conducted.

Our main targets in the field of research were conferences and publications. Every consultant was given a research project for data collection, and finally the publication of

material. These research articles were completed by junior consultants under the supervision of senior consultant till the final stage of publication. Computerized record of all academic and research projects was kept.

RESULTS

Clinical Audit

Database analysis of surgical audit revealed that total procedures done were 1440. There were 697 patients who needed thoracostomy for different conditions while elective procedures done were 743. Total elective thoracic procedures were 651 (87.61%) while elective cardiac procedures were 29 (3.90%). Various procedures were performed included, decortication 154 (20.72%), oesophagectomy 83 (11.17%), Hydatid cystectomy 33 (4.44%), PDA ligation 18 (2.42%), pericardectomy 03 (.40%), lobectomy 34 (4.57%), pneumonectomy 10 (1.34%), thoracoplasty 21 (2.82%), Mediastinal mass excision 19 (2.55%), Retrosternal goiter excision 08 (1.07%), Mediastinotomy 45 (6.05%), Pleurectomy 12 (1.61%), Bullectomy 12 (1.61%); Chest wall tumour excision 10 (1.34%), Pleural mass excision 02 (0.26%); Open pleural biopsy 23 (3.09%), other thoracic 37.28%, others esophageal 22.20% and others cardiac procedures were 0.94% (Table-I).

Over all morbidity was 34/571 (4.57%) as shown in Table-II. Thirty four patients developed various complications, which included wound infection 15 (2.01 %), post oesophageal anastamotic leak 07 (0.94%), esophageal perforation 01 (0.134%), bronchopleural fistula 04 (0.534%), Empyema 05 (0.672 %) and DVT in 02 (0.269 %) patient. Detailed scrutiny of the record showed that the incidence of wound infection after decortication was higher than the other cases, which required thoracotomy. Similarly the incidence of endoscopic perforation was higher in esophageal carcinoma as compared to benign pathology. Three patients developed bronchopleural fistula; of these one patient required reexploration while in two cases air leak settled with low pressure suction.

The overall mortality was 27/571 (3.63%) as shown in Table-III. The causes of death in these twenty-three patients were respiratory 3.09%, cardiac in 0.26%, hemorrhage in 0.134% and septicemia in 0.134%. Respiratory causes of death in our cases were pulmonary embolism in nine cases, did not recovered from anesthesia in eight cases, aspirated in two cases, failure to come off the ventilator in four patient. Cardiac causes of death were arrhythmias in one case while in other case the patient died because of MI. Hemorrhage occur in only one case, while one died because of septicemia.

ACADEMIC & RESEARCH AUDIT

The academic and research contribution of our department can be observed from the fact that the department has four trainee fellows in thoracic surgery, conducts once monthly clinical audit, weekly journal club and weekly joint meeting with pulmonology and radiology department.

Our department has presented 04 papers at Annual National Conference of the Pakistan Society of Cardiovascular and Thoracic Surgeons from 27th to 28th January 2006 at Islamabad, 03 papers at The 5th International Congress of the African -Middle East Association of Gastroenterology, from 24th -26th February, 2006 Sharjah, U.A.E ,02 papers at Biennial Conference of Society of Pediatric Surgeons of Pakistan, March 2006 at Peshawar, 10 papers at 7th Biennial Conference on Lung Health from 19th to 22nd April, 2006 at Quetta and 09 papers at 6th Biennial International Conference of the Pakistan Society of Cardiovascular and Thoracic Surgeons 14—17 December 2006 at Karachi, and attended 20th Annual conference of EACTS Stockholm 10th to 13th September 2006.

The department has 09 publications to its credit in the last year, 06 papers published in Pakistan Journal of Cardiovascular & Thoracic Surgery, 02 papers published in Annals Journal King Edwards and 01 paper published in Pakistan Journal of Chest Medicine, while 02 more were accepted for publication.

DISCUSSION

An audit of surgical mortality can be seen as the final step in what has been termed the "journey of care" for both the individual patient and for the population as a whole⁷. When outcomes are open to scrutiny, data validation is a vital component of meaningful clinical audit. It outlines in greater detail the progress and problems in surgical audit⁸.

The individual and institutional responsibilities are that it should provide the hardware, software and personnel to allow patient oriented data collection for risk stratification. The cardiothoracic surgical unit should define the strategy for data collection, collation and presentation, and should dedicate time each month for presentation and discussion of surgical activity and results⁹. The unit should identify one consultant with overall responsibility for coordinating and developing audit programme. Each consultant surgeon must assume full responsibility for collection of complete, accurate and honest data on all cases under his / her care¹⁰.

The audit process involves data collection, data validation, audit meeting and surgeon specific review^{11, 12}. Data collection remains the joint responsibility of the hospital and the surgeon. Data collection strategies must be determined locally. A network computerized system with good statistical capabilities is recommended. Data validation should be performed by random selection of case notes to reduce gaming/fraud. Audit meeting should be held monthly in allocated and dedicated time¹³. All consultants should attend meeting and they should foster an air of constructive analysis and criticism.

Specialist registrars should be involved as part of their training and attendance of nursing, technical and other staff should be encouraged. A register of attendance should be kept. The form of presentation and discussion should be agreed and developed locally but meeting should address total surgical activity, risk stratified activity, mortality and morbidity and intermittent detailed review of specific issues and outcomes in order to improve practice¹⁴.

Overall mortality in thoracic surgery has been reported as 2.5 to 4% in many studies^{8, 9, 14}. Mortality in our one year audit was 3.63% (i.e. 27 deaths). The respiratory and cardiac causes of death are comparable to other studies^{3, 9, 14}. Proper sterilization and asepsis in all respect of surgery needs to be addressed in our circumstances. Morbidity in our study was 4.57% (i.e. 34 cases). Various complications that occurred are comparable to other studies^{8, 9}. However, we had higher incidence of wound infection 15 (2.01%) and cervical anastomotic leak 07 (0.94%), which needs to be addressed.

The services and facilities provided by our department are; 24 hours on call for emergency take, OPD twice a week; 4 operating table twice a week, 31 bedded wards, 6 bedded Intensive Care Unit, 6 bedded HDU, 4 theatres suites and 2 private rooms. Over 4000 patients were seen in outpatient department; over 697 emergencies were received and 743 elective surgical procedures were performed. Scrutiny of computerized record showed that inflammatory lung diseases, chest trauma and carcinoma esophagus are on the rise while bronchogenic carcinoma is not as common as in the West 13. Regarding patient care there is close liaison with Pulmonology, Radiology, Paediatrics, Medical, Cardiology, Neurology, Physiotherapy and anesthesiology department.

In order to further improve our services, there is dire need for video assisted thoracic surgery (VATS) suite, a dedicated esophageal unit and in integrated chest facility.

CONCLUSIONS

Accurate outcome data following thoracic surgery; as well as of academic and research activities are essential for proper audit and hence for improvement in clinical practice, academic and research excellence to occur.

Accountability is the buzzword these days. It is high time that like the rest of the world, the medical profession in Pakistan, is also held accountable. Every unit and every consultant should be required to submit their annual audit, to a Central Registry for every specialty. This central Registry can be with either the Pakistan Medical & Dental Council (PM&DC) or Specialist Societies / Associations. From this Central Registry a National Standard should be determined. Anyone falling below this standard would be instructed to improve / reprimanded / chucked out. This is already the practice in UK in the form of the British Thoracic Registry since 1976. It is high time that PM&DC gets in step with the rest of the world.

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TABLE-I
Surgical Procedures (n=743)

Thoracic Procedures (n=743)	No. of Patients	% Age
Decortication	154	20.72
Esophagectomy	83	11.17
Hydatid cystectomy	33	4.44
Mediastinal Mass Excision	19	2.55
Retrosternal goiter Excision	08	1.07
Pneumonectomy	10	1.34
Lobectomy	34	4.57
Thoracoplasty	21	2.82
Mediastinotomy	45	6.05
Pleurectomy	12	1.61
Bullectomy	12	1.61
Chest wall Tumour Excision	10	1.34
Pleural Based mass	02	0.26
Open pleural biopsy	23	3.09
Wedge resection	07	0.94
Chest wall sinus Excision	01	0.13
Cervical Rib Excision	06	0.80
Repair diaphragmatic hernia	06	0.80
Heller's Myotomy	04	0.53
Thymectomy	07	0.94
Open lung biopsy	22	2.96
Cardiac closed procedures (n=29)		
Patent Ductus Arteriosus Ligation (PDA)	18	2.42
Closed Pericardectomy	03	0.40
Pericardial Intubation	07	0.94
Pericardial cyst	01	0.13

TABLE-II
Morbidity (n=34)

Complications	No. of Patients	% Age
Wound Infection /Dehiscence	15	2.01
Esophagectomy leak	07	0.942
Endoscopic Esophageal Perforation	01	0.134
Bronchoplural Fistula	04	0.538
Empyema	05	0.672
Deep Venous Thrombosis	02	0.629

TABLE- III
Mortality (n=27)

Complications	No. of Patients	% Age
Respiratory	23	3.09
Cardiac	02	0.629
Hemorrhage	01	0.134
Septicemia	01	0.134

TABLE-IV
Academic and research activities

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- Four trainees in thoracic surgery
 - Twenty nine papers presented at National and International Conferences
 - Nine publications in various journals of the country
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