COACTION PUBLISHING

Six years of cardiac database management: the impact on clinical practice

Shumaila Furnaz*, Shazia Perveen and Mubashir Zareen Khan

The Aga Khan University and Hospital, Karachi, Pakistan

Objective

To assess the impact of database development and maintenance on clinical practice and quality of care.

Introduction

Cardiothoracic surgery quality improvement is a core value of healthcare provision. In order to improve quality of care, information on key indicators needs to be systematically collected and maintained. In 2006, the cardiothoracic department at AgaKhan University developed an infrastructure that would enable us to answer the more challenging research queries in cardiac surgery practice. The resulting electronic cardiothoracic database is based on the European Association of Cardiothoracic Surgeons database and the Society of Thoracic Surgeons database. While, it is currently used only at Aga Khan University, it has the potential to become a multicenter database.

Methods

We chose the following aspects of patient care to be included in the database form: presurgery patient condition and medications, anesthesia information, perfusion information, surgery information, recovery information, status of the patient at discharge and30 days and 365 days postsurgery follow-up information. Information was collected through structured questionnaire by trained data abstractor and entered into Microsoft Access software. On the basis of research hypotheses, specific data chunk was extracted and analyzed in SPSS (Statistical Package of Social Sciences) software.

Results

From January 2006 to May 2011, there were 3418 open heart surgeries performed. Out of them, 69.63% were isolated coronary artery bypass grafting, 10.7% were isolated valve, 2.3% were valve and coronary artery bypass grafting, 15.9% were other cardiac procedures and 1.46% was combination of cardiac procedures. The overall 30-day mortality was 3.6%. Postsurgery morbidity was 21.5%, which includes 3.6% reoperation for bleeding, 0.6% neurological, 0.7% dialysis, 1.3% heart failure, 0.3% septicemia, 1.8% prolonged ventilation, 8.6% multiorgan failure, 0.9% respiratory complications, 1.7% cardiac arrest and 1.1% deep sternum wound infection. Follow-up at 30 days, patients alive were 91.6%, dead, 0.1% and lost to follow-up, 3.6% and, at 365 days, alive, 93.2%, dead, 2.1%, and lost to follow-up, 4.6%.

Impact in clinical practice

Before this database, there was no way to monitor mortality and morbidity. Fortunately, with the development of database, postsurgery mortality and morbidity rates could easily be generated. It helped in development of strict enforcement of protocol to reduce the mortality and morbidity rates. It also helped in controlling preventable postsurgery complications. It also helps in identification of a gap inpatient knowledge regarding the use of warfarin after heart valve surgery and deficiencies in laboratory capabilities, both causing catastrophic complications. As a result, we modified our practice in an effort to address these issues and reduce the complication rates after heart valve surgery.

Furthermore, identification of the need to quantify the midterm functional status of in-person and telephonic interview, resulting in the development of a questionnaire that has been added to our protocol 1-year postsurgery.

Way forward

More meticulous record keeping, including long-term follow-up for 5 years will be collected. In addition to this, the development of a separate congenital/pediatrics cardiac surgery database will also be developed.

Conclusion

Updated and stringently maintained database helps to identify deficiencies in practice and provides a direction for future improvement.

Key Words

Database; coronary artery bypass grafting; warfarin; mortality; quality of care; evaluation

Acknowledgments

Dr Taimur Asif Ali (resident of cardiac surgery).

***Shumaila Furnaz**
E-mail: shumaila.furnaz@aku.edu

 © 2011 S. Furnaz et al. This is an Open Access article distributed under the terms of the Creative Commons Attribution-Noncommercial 3.0 Unported License (http://creativecommons.org/licenses/by-nc/3.0/), permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.