Injury* is one of the leading causes of mortality and disability worldwide. It is a significant public health problem that is often overlooked in the developing world. The burden of non-communicable diseases (including injuries) is continually increasing and currently accounts for nearly half of the global burden of disease among all ages.1 Five million people worldwide lose their lives annually as a result of trauma and injury.2 Globally, among the age range of 15-44 years, the leading causes of fatal injury are traffic collisions, interpersonal violence, self harm, war, drowning, and exposure to fire. Unfortunately, people with lower economic backgrounds are at a higher risk of injury because they often live, work, travel, and go to school in unsafe environments.

National injury statistics in Australia, the Netherlands, New Zealand, Sweden and the USA indicate that for every death, at least 30 times as many people are treated in hospital emergency rooms.3 However, these numbers do not depict the true injury burden in low and middle income countries because of limited data availability in these regions. Low and middle income countries account for 90% of the total burden of injuries4 with the Southeast Asia and Western Pacific regions having the highest number of injury deaths worldwide.5 The effects of injuries and trauma on premature mortality and long-term disability are often over shadowed by the overwhelming burden of infectious disease and malnutrition in low and middle income countries. As a result, a low budget is allotted for injury prevention and safety promotion, and few injury prevention programmes are developed.

Pakistan is the seventh most populous country in the world, with a population of 164 million.6 In the first national injury survey in Pakistan, the yearly overall incidence of injury was found to be 41 injuries for every 1000 persons. The survey identified road traffic injuries (RTIs) as one of the major causal factors for injury. RTIs have a yearly incidence of 15 injuries for every 1000 persons.7 Children injured in RTIs tend to have uneducated mothers when compared to non-injured controls.8

Another major mechanism of injury in Pakistan is that of violence. Violence primarily affects wage earners and can include anything from intimate partner violence (IPV) to war. A study conducted to assess the magnitude of IPV in Pakistan indicated that 44% of women experience lifetime marital physical abuse.9 Reported risk factors for domestic violence against women include low educational status, low empowerment, poverty, the dowry system, and an addiction to alcohol in males. Violence related to war is also a significant problem. A study of blast injuries during the last five years in the city of Karachi reported 58 bomb blasts in this city alone, resulting in 689 injuries and 164 deaths.10

In order to accurately measure the burden of injuries in Pakistan, the problem must be assessed at a national level. A National Action Plan for Non-communicable Disease Prevention, Control and Health Promotion in Pakistan (NAP-NCD) is currently being developed. The plan incorporates the prevention of road traffic crashes (RTC)s, occupational injuries, falls, burns, and all other injuries into a national public health strategic plan.11

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* The standard definition of an ‘injury’ as used by WHO is: Injuries are caused by acute exposure to physical agents such as mechanical energy, heat, electricity, chemicals, or ionizing radiation interacting with the body in amounts or at rates that exceed the threshold of human tolerance. In some cases (for example, drowning and frostbite), injuries result from the sudden lack of essential agents such as oxygen or heat.
Although this is a good start, more practical actions are still required. Practical actions should include raising awareness, advocating for more resource allocation and training at a national level, building injury research groups at research institutes/universities, and developing injury prevention needs assessments at a community level. A partnership of international agencies and injury prevention research scientists around the world will benefit individuals and communities, both in Pakistan and globally.4

References

Original Article

Predictive Model of blood transfusion during CABG Surgery in Pakistan
Sana Shoukat1, Saqib A. Gowani2, Farhad Khimani3, Faraz A. Khan4, Mohammad Zaman5, Hasanat Sharif6
Medical Officer1, Medical Students2-3,4, Faculty of Health Sciences, Aga Khan University, Karachi, Department of Psychiatry5, Aga Khan University, Karachi, Cardiothoracic Section, Department of Surgery6

Abstract

Objective: To determine predictors of need for transfusion of blood and blood products and create a clinical predictive model to reduce indiscriminate use of blood products during surgery.
Method: We conducted a retrospective chart review of 485 patients who underwent coronary artery bypass surgery from January 2004 to December 2004 at a Tertiary Care Hospital in Karachi, Pakistan. Independent predictors associated with transfusion were identified and a clinical prediction model developed.
Results: The transfusion rate was 37.1%. A predictive model was created based on the presence of pulmonary disease, diabetes mellitus, low ejection fraction and recent/ongoing myocardial infarction.
Conclusion: The study identifies some predictors of need for blood transfusion in patients undergoing Coronary Artery Bypass Grafting. However, prospective studies with a larger sample of patients are needed to determine other predictors and their applicability in patient selection across institutions (JPMA 58:421;2008).

Introduction

Coronary artery bypass-graft surgery (CABG) currently is the commonest cardiac operation performed in the adult population.1 There have been great advances in perfecting this surgery leading to reduced number of complications. However, the complications related to blood transfusion are still high. According to international figures, use of blood transfusions for cardiac patients is as high as 10-40%, presumably higher in Pakistan considering the lack of blood conservation strategies.2,3 The patients requiring blood transfusion make up more than one third of those going for elective CABG.4

Transfusion of blood or its products are reported as the most important factor associated with increased risk of postoperative morbidity and mortality following a coronary artery bypass graft surgery.5,6 The risks associated with transfusion include infectious disease transmission, acute and delayed haemolytic reactions, transfusion-related acute lung injury and transfusion related immunomodulation.7,8 These morbidities not only affect the patient's quality of life and risk of death after the procedure but also add a huge cost burden especially if a lifelong infection is acquired.

Blood conservation techniques including preoperative autologous blood donation (PABD), intraoperative use of antifibrinolytic drugs, hypervolaemic