

Approach to Non-cardiac Surgery in Cardiac Patients

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DESCRIPTION

Coronary artery disease (CAD) is the leading cause of death in both developed and developing nations of the world. CAD is one of the most expensive conditions treated in hospitals. The predicted average risk of CAD in the population of United States of America (USA) is 2.5%. However, most data on CAD are collected from white adult males from North America and is extrapolated to other ethnic populations such as Asians and African-Americans. A few reports that estimated the risk of CAD in Asians (people from Asia, Sri Lanka, Bangladesh, Pakistan), found an alarming rate of 3 times higher than the national average in the USA. Several studies that examined the CAD in this population showed interplay between the metabolic, genetic, environmental, and social settings. However, there have been concerns over the external validity of published data since most of these studies looked at migrant Asian population. Since this population enters an availability bias, extrapolation of this data to native Asians could be erroneous. Despite this bias, since the CAD risk in Asian population is high, strategies should be implemented that reduces this risk, improves quality of life, and prolongs survival.

Premature ischemic heart disease is rampant in Asia with a high number of young patients presenting to hospitals with acute myocardial infarction (AMI). Many young people succumb to CAD during the most productive years of their lives leading to severe emotional and financial strain on the family and affecting the national economy. High prevalence of CAD in Asians may be due to genetic predisposition as is reported. Subclinical atherosclerosis is very high that may be related to high prevalence of vitamin D deficiency in India. Asians are genetically three times more vulnerable to CAD compared to the western population. Modern genetic research has been able to identify the risk of developing CAD and quantify them using a novel technique called Polygenic Risk Score

It is imperative to give importance to the statistics of heart disease in the current era. Approximately 200 million patients undergo a major non cardiac surgery every year worldwide. Despite the benefits of surgery, annually over 5 million of these patients suffer a cardiovascular event in the first 30 days after surgery. In the forthcoming years, the number of ageing populations who bear the brunt of CAD requiring surgery will increase by four times as often as the rest of the population and this is bound to have an impact on perioperative management.

Evaluation of cardiac risk prior to non-cardiac surgery in patients with cardiovascular disease identifies those patients who need specific preoperative non-invasive and/or invasive assessments, medical treatment optimization, and preventive strategies.

Risk evaluation allows the anaesthesiologist, the surgical team, the patient and the next of patient's kin to appreciate and prepare for potential adverse outcomes. The process of shared decision making by a physician and patient as well as the procedure of informed consent is expected to be simplified by risk predictions and estimations.

The consequences of a well conducted evaluation of cardiac risk include the ability to customize investigations according to the risk profile of the patients, whilst reducing unnecessary cost and time-consuming tests which may not improve outcomes in the low risk patients; surgical decisions regarding the type of surgery to be done or whether the operation should be performed at all; and perioperative plan of action such as tailoring of special monitoring modalities to patient needs, choice of technique of anaesthesia and anaesthetic drugs, and pre-emptive reservation of beds in the intensive care unit to optimize postoperative care of these patients. Proper documentation of risk predictions allows statistical comparison of outcomes amongst surgical teams and surgical centres, and over time.

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