Preoperative Anesthesia Referrals to Cardiology and Outcome in a Tertiary care hospital

Abstract

Objective: This study was designed to assess the outcome of preoperative cardiac consultation on perioperative management for non cardiac surgery patients.

Study Design: Prospective, Observational study.

Place and Duration of Study: Pakistan Institute of Medical Sciences, Islamabad from Jan 2013 to July 2013.

Materials and Methods: Patient with positive cardiac history and symptoms and signs suggestive of cardiac disease were screened by Anesthetist and referred to single Consultant Cardiologist to risk stratify cardiac status and to find out that whether further treatment was required.

Results: 59% of patients were female and 41% male. 72% were between 45-75 years of age. It was observed that out of 100 patients only 16% were identified as high risks, even though 55% had cardiac co morbidities including patients with abnormal echo (36) and with abnormal rhythm on ECG (39). Only one patient needed further intervention.

Conclusion: An overuse of cardiac review is being done in our set up leading to unnecessary burden on cardiology department and wastage of resources. Besides detection of any clinical abnormality by Cardiologist, it is adding little to further decision making by Anesthetist.

Key Words: Cardiac Diseases, Cardiac Assessment, Risk Stratification.

Introduction

Provision of quality health care is aim of anaesthetist and surgeon for all patients. Good assessment of physical health and airway enables us to plan anaesthesia technique, intraoperative care and postoperative management. Cardiac patients for non cardiac surgery are significant management challenge to anaesthetist as either they do not have extensive workup or not medically prepared for procedure and postoperative care. In these patients medical optimization is required before surgery and this can be achieved by detailed and cost effective preoperative assessment with the minimum tests and referrals. The patients with known or suspected cardiac disease or at risk of such insult are often referred to cardiologist. Purpose and utility of this consultation is affected by the confusion between anaesthetist and the cardiologist as reason for expert opinion and questions to be answered are not indicated in referral forms. Although an anaesthetist is primary user of preoperative consultations but the advice is often limited to “clear” a patient for surgery instead of guiding toward optimization of medical illness before it get compounded by surgical insult. Hypertension is the most prevalent cardiovascular disease with many patients being untreated, or diagnosed with poor follow up. These patients may suffer cardiac failure and ischemic heart disease and have higher risk of raised mean arterial pressure in response to laryngoscopy and intubation as compared to those patients who were identified and managed preoperatively. During Intraoperative period,
uncontrolled or poorly controlled hypertensive patients are associated with an increased incidence of ischemia, myocardial infarction, dysrhythmias and stroke. The patients with coronary artery disease have highest morbidity and mortality. During pre anesthesia assessment, anesthetist has to identify and grade the severity of the CAD from history, physical examination and ECG and referral and evaluation to cardiology will verify the findings and label the cardiac status. On ECG, changes in ST segment are highly suggestive of presence of acute coronary artery disease. Once the cardiovascular diagnosis has been established, it is helpful to quantify the risk of adverse cardiac events in the intraoperative period. The two preoperative factors that appear to increase risk for postoperative cardiac morbidity are MI within six months and current congestive heart failure. Raby KE et al in their study found that 38% of those who had a postoperative cardiac event had preoperative ischemia. Another study by Pasternak PF et al revealed that postoperative myocardial infarction was directly related to the number and length of ischemic episodes and total duration of ischemia.

Materials and Methods

During the period of six months, 100 patients with positive history, physical examination, ECG and those with known cardiac disease were screened by anesthetist and referred to author cardiologist for evaluation of cardiac status, associated risks and further treatment if needed. On the predesigned proforma, all patients' personal information and anaesthetist's findings were documented and then referred to author cardiologist. After evaluation and documentation by cardiologist, Performa was returned to anesthesia department. Records reviewed included the cardiology consultation and subsequent tests results, the anaesthesia preoperative evaluation,. Data on age, sex, reason for consultation, cancellations, and surgical procedures.

Results

The record of 100 patients sent for cardiology consultation was analysed. It was found that about 72% of the patient fell between age group 45-75 years. (Table.I) and among them 41% were males and 59% were female. 48% were from General Surgery followed by Orthopaedic (16%), Urology (14%), Ophthalmology (14%) and Obs/Gynae (13%). As regards co morbidities, among 55% of patients, hypertension was seen in 26 patients, ischemic heart disease in 12, Diabetes along with positive cardiac history in 11, and miscellaneous medical problems were seen in 6 patients. (Figure 1) In patients with abnormal rhythm on electrocardiogram there was ST segment abnormality in 16 patients, conduction defects in 23 patients. 36 % patients had abnormalities of varying degree –grade II diastolic dysfunction on echocardiography.

Table I. Pattern of Co Morbidities

<table>
<thead>
<tr>
<th>Age Range (Years)</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65-75</th>
<th>75 and above</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Patients (%)</td>
<td>15</td>
<td>24</td>
<td>28</td>
<td>20</td>
<td>13</td>
</tr>
</tbody>
</table>

Among high risk group 10 patients had severe ischemic heart disease, 3 patients had valvular lesion and 3 patients had cardiac conduction defects. Variable degree of pulmonary hypertension was found in these patients. All patient of high risk category were allowed to have life saving procedure only. Cardiologist stratified 60% patients as low risk, 24% as intermediate and 16% as high risk. (Figure 2)
Discussion

A patient planned for surgery need detailed work up regarding preoperative physiological status, airway status, comorbidities and optimisation if needed, nature of disease and type and duration of surgery. Anaesthetic technique and management plan for intra operative and postoperative care is planned accordingly. An anaesthetist should take responsibility for organizing pre-operative anaesthetic services. Any patient with co-morbidities may suffer delay or cancellation till adequate optimization to reduce the rate of morbidities and mortalities and to have desired result at end of the day. A team approach is essential in pre-operative period. Essential team members include anaesthetist, surgeon and physician of different specialities. Cardiovascular complications following non-cardiac surgery play significant role in perioperative morbidity and mortality. Yearly about one million surgeries are complicated by adverse cardiovascular events, such as myocardial infarction or death from cardiac causes.

In order to address these issues, cardiac evaluation prior to noncardiac surgery should be sought and opinion regarding: What is the risk of cardiac complications during and after surgery? How can that risk be reduced or eliminated? Previous or current cardiac disease, diabetes and renal insufficiency all confer higher risks for perioperative cardiac complications. During pre operative evaluation thorough history, clinical evaluation and laboratory testing is done and any ambiguity regarding cardiac status should be reviewed by a cardiologist.

In our study group of 100 patients, 72% patients were in age group of 45-75 years. In these years cardiac diseases begin to alter the physiological status of patients so it was quite relevant to refer these patients to cardiology clinic for evaluation. 59% were female comparative to other studies done in same respect. Referral depending on type of procedure was not done but majority were from general surgical floor. Majority of patients (84%) were ranked low to intermediate risk for surgery. 16% patients were graded high risk to undergo surgical procedure comparative to other studies done.

Out of high risk group majority had ischemic heart disease followed by valvular and then conduction defects. No immediate intervention was advised except that one patient was prescribed further testing as the consultation asked was not specified to any direction or particular guidance so the opinion given was just limited to presence of disease and its extent of impact on physiology. Study done by Aslanger et al concluded that preoperative cardiology consultation seems to be overused. Although the fear of missing important issues leads surgeons to use a decreased threshold for pre-operative consultation requests, such a non-specific manner of pre-operative consultation request causes unnecessary investigations and decreased cost-effectiveness. Furthermore, the detection of any clinical abnormality by cardiologists surprisingly adds little to clinical decision making. Although cardiovascular complications are less common but their effect is significant especially in patients with peripheral vascular disease so any intervention that can be cardio protective can be worth.

Opinion given to anaesthetist should include treatment of chronic disease process and managing oral drug regimens during perioperative period. Various guidelines has been devised to do cardiac risk stratifications and these are reviewed repeatedly to provide all the best support from our cardiology floor colleague. Some studies showed that significant number of preoperative cardiology consultations has no impact on perioperative management. If some special attention is given to consultation procedures, education of involved staff, it can improve the yield of cardiology consultations.

Conclusion

An overuse of cardiac review is being done in our set up leading to unnecessary burden on cardiology department and wastage of resources. Besides detection of any clinical abnormality by Cardiologist, it is adding little to further decision making by anaesthetist, however, our system of requesting and responding to consult requests has not changed

References

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