

## 2014 ACC/AHA guidelines for cardiac patients undergoing non-cardiac surgery – omitted zones

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With increase in life-expectance and also increase in life-style induced diseases, more and more patients suffering from cardiovascular disease are coming for non-cardiac surgery. Cardiovascular disease is the major cause of chronic disability, loss of independence, and impaired quality of life among older people. Indeed cancer is the leading cause of death among 18 to 74 years of age, and it is only after 75 years that CVD becomes the dominant cause of mortality. Although people >75 years old account for only ≈6% of the total population, 50% of the cardiovascular deaths occur in this age group.<sup>(1)</sup>

The latest 2014 ACC/AHA guidelines on perioperative cardiovascular management of patients undergoing non-cardiac surgery have comprehensively described the management of such patients. They have exhaustively listed the investigations required, drugs to be withheld or continued preoperatively, depending upon whether the patient is for emergency surgery or for elective surgery. They have even included various risk indices to predict the incidence of perioperative major adverse cardiac events (MACE). One of these risk indices is RCRI (Revised Cardiac Risk Index), which is a simple, validated and accepted tool, and which includes six predictors of risk. Patients with ≥2 predictors of risk would have elevated risk. Two newer tools have now been created to predict the incidence of MACE. American college of Surgeons NSQIP (National Surgical Quality Improvement Programme) MICA (Myocardial Infarction and Cardiac Arrest) risk-prediction was created in 2011, and their target complications were defined as cardiac arrest or myocardial infarction. Another risk index is American college of Surgeons NSQIP Surgical Risk Calculator which enables procedure specific risk assessment.<sup>(2)</sup> Various studies have also advocated the use of biomarkers – natriuretic peptide and C-reactive proteins – in preoperative risk indices as an approach to identify patients at high risk.<sup>(3)</sup> But no consensus has been reached till date.

A significant assertion of these 2014 guidelines is that there is no prospective role to support routine coronary revascularization, either CABG or PCI (percutaneous coronary intervention), before non-cardiac surgery in low risk patients to decrease intraoperative or post-operative events, even in patients with documented CAD, with exclusion of those with left main disease, LVEF < 20% and severe Aortic

Stenosis. However the patient, whose evaluation recommends CABG surgery, should undergo coronary revascularization before an elevated-risk surgical procedure. Moreover guidelines also recommend that the cumulative mortality and morbidity risks of both the coronary revascularization procedure and the noncardiac surgery should be weighed carefully in light of the individual patient's overall health, functional status, and prognosis.<sup>(2)</sup>

Various articles are there that proclaim the lacunae in these guidelines. A scientific statement from the American Heart association, American college of Cardiology, and American Geriatrics Society stated that despite the high prevalence of cardiovascular disease, most of the randomized clinical trials have either explicitly excluded older adults or have enrolled only relatively healthy older patients with few co-morbidities or functional impairment.<sup>(1)</sup> In general, the studies in which guidelines were based enrolled few older adults or included older patients with less co-morbidity who were not representative of older population treated for cardiovascular disease in the community. Older adults account for the majority of major surgical procedures done in USA and Europe and it is estimated that rate of surgery is upto 4 fold higher in older adults than in younger people.<sup>(1)</sup>

In-order to close knowledge gaps across guidelines, these societies made various recommendations. Besides highlighting the need to recruit representative older adults in clinical cardiovascular research, they also emphasized the need for studies that assess cost-effectiveness, value, and resource utilization in the diagnosis and treatment of older adults with or at risk of cardiovascular disease and with reference to specific patient-centered clinical outcomes.<sup>(1)</sup>

Moreover these guidelines themselves admit that the current recommendations for perioperative cardiovascular evaluation and management for non-cardiac surgery are based on clinical experience and observational studies with few prospective RCTs. Diagnostic cardiovascular testing continues to evolve, with newer imaging modalities being developed. The value of these modalities in preoperative screening is uncertain and warrants further study. Again the use of perioperative beta-blockers in beta-blocker naïve patients undergoing non-cardiac surgery remains controversial, although there is sufficient evidence that

patients receiving long term betablocker therapy should continue them peri-operatively.<sup>(2)</sup>

As has been stated by Wijeyesundera and Sweitzer, the goal of preoperative evaluation is to identify the patients who have high perioperative cardiac risk or those who have modifiable risk.<sup>(4)</sup> There is no doubt that the ACC/AHA practice guidelines for cardiac evaluation before non-cardiac surgery are the benchmark for standard of care. These guidelines give an overview of how to proceed for anaesthesia in these cardiac patients, emphasizing with established proofs on various modalities of investigations, interventions and drug administrations. However, like the earlier guidelines, concerns still exists over cost effectiveness as well as timely resource utilization of various modalities used in the management of such patients; especially in geriatric patients with various other comorbidities and in patients on multiple drug therapies.

### **References**

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