All patients over age 65 should have a heart check before high-risk non-cardiac surgery

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A heart check-up is recommended in even apparently healthy people over 65 years of age before intermediate- or high-risk non-cardiac surgery, according to European Society of Cardiology (ESC) Guidelines

on cardiovascular assessment and management of patients undergoing non-cardiac surgery published online today in the *European Heart Journal*.

It is estimated that more than 300 million people have major surgery worldwide every year. Nearly 85% of major operations are non-cardiac procedures. In the European Union, it is estimated that at least 660,000 major cardiovascular complications occur annually due to non-cardiac surgery. The document provides advice for the pre-operative, operative, and postoperative care of patients undergoing non-cardiac surgery. The aim is to prevent cardiovascular complications including myocardial infarction, thrombosis (blood clots) in stents, heart rhythm disorders, pulmonary embolism, stroke, and death.

The likelihood of cardiovascular complications depends on the patient's characteristics as well as the type of surgery and whether it is elective or urgent. Surgeries are categorized as low (less than 1%), intermediate (1–5%) and high (above 5%) surgical risk according to the likelihood of heart attack, stroke or death due to cardiovascular disease within 30 days. For example, knee surgery is low risk, a kidney transplant is intermediate risk, and a lung transplant is high risk. Professor Julinda Mehilli of Landshut-Achdorf Hospital, Landshut, Germany said, "In patients 45 to 65 years of age without signs, symptoms, or history of cardiovascular disease, an electrocardiogram (ECG) and troponin measurements should be considered before high-risk non-cardiac surgery."

The guideline outlines actions patients can take before and after surgery to lower the likelihood of cardiovascular complications. Smoking cessation more than four weeks before surgery is advised as well as controlling high blood pressure, dyslipidemia, and diabetes. Patients should be checked for anemia, which should be treated before surgery. If patients are taking medication, particularly blood thinners, they must

be informed by their doctor whether to pause or continue these drugs. Guidelines task force chairperson Professor Sigrun Halvorsen of Oslo University Hospital Ulleval, Oslo, Norway, said, "It is very important that patients using blood thinners receive detailed information on how to manage these drugs before and after surgery."

Risk assessment should encompass patient and surgical aspects so that individualized decisions can be made. The document states, "It is important that patients' values and preferences with respect to the benefits and risks of surgery are taken into consideration, and that patients are involved in the decisions. This is particularly important when it comes to decisions about undergoing elective surgery or not, the timing of surgery, and choice of surgical and anesthetic techniques."

The document provides tailored recommendations for patients with different cardiovascular conditions, kidney disease, diabetes, cancer, obesity, and COVID-19. In general, after COVID-19, elective non-cardiac surgery should be postponed until complete recovery and optimization of coexisting conditions.

Existing heart disease increases the risk for perioperative cardiovascular complications, particularly in older patients. All patients with coronary artery disease should receive a cardiac assessment. The decision for invasive diagnostic examination and revascularization with stents or bypass surgery prior to a non-cardiac operation should be individualized based on symptoms and the presence of heart vessel narrowing or blockage.

Patients with symptomatic valvular heart disease, particularly those with aortic valve stenosis or mitral valve regurgitation, are at higher risk of perioperative complications especially when undergoing intermediate- and high-risk non-cardiac surgery. Depending on the severity of aortic valve stenosis and the urgency and severity of the planned non-cardiac

surgery, the guidelines recommend surgical or transcatheter valve repair or balloon valvuloplasty as a bridge to repair.

Those with severe mitral regurgitation frequently have heart failure, which doubles the risk of complications, particularly after intermediate- or high-risk non-cardiac surgery. Percutaneous or surgical mitral valve repair should be considered before non-cardiac surgery on top of optimal guideline-directed medical therapy.

A pre-operative cardiac check-up with an ECG is also recommended in patients with arrhythmias, who should continue taking their antiarrhythmic drug medication. Patients with a pacemaker or implantable cardioverter defibrillator must have their device checked before surgery, if this has not been done recently.

Following non-cardiac surgery, particularly intermediate- and high-risk surgery, the most common cardiovascular complication is myocardial injury, which is associated with an increased risk of death within a month after surgery. Patients with heart disease are more likely to experience this complication and may require longer observation in intensive care than those without cardiac disease.

More information: Sigrun Halvorsen et al, 2022 ESC Guidelines on cardiovascular assessment and management of patients undergoing non-cardiac surgery, *European Heart Journal* (2022). DOI: 10.1093/eurheartj/ehac270

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