

PERIOPERATIVE CARDIAC ASSESSMENT

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Scope of Problem

- 4% of the world population
- 30% presence of cardiovascular comorbidity
- Complications 7–11% mortality of 0.8-1.5%(42 % cardiac)

Case#1

לכבוד: קרדיולוג

תיאור רפואי	שירות שנבחר	
	קוד משה"ב	קוד שירות
בדיקת רופא קרדיולוג	L9276	70025

הריני מפנה את המטופל הנ"ל להתייעצות בשל

תלונות בוצע אקג לקראת ניתוח קטרקט, רושם של AV BLOCK FIRST DEGREE, המטופל אסימפטומטי, לא נוטל טיפול תרופתי קבוע

סימנים חיוניים: גובה 167 14/10/2018 משקל 89 14/10/2018 bmi

לחץ דם 164 / 87 09/10/2018

Case#2

- a 62-year-old man
- AAA gradually increasing in size
- elective open repair
- DM ,HTN ,CAD

Preoperative risk assessment

**patient-related
risk factors**

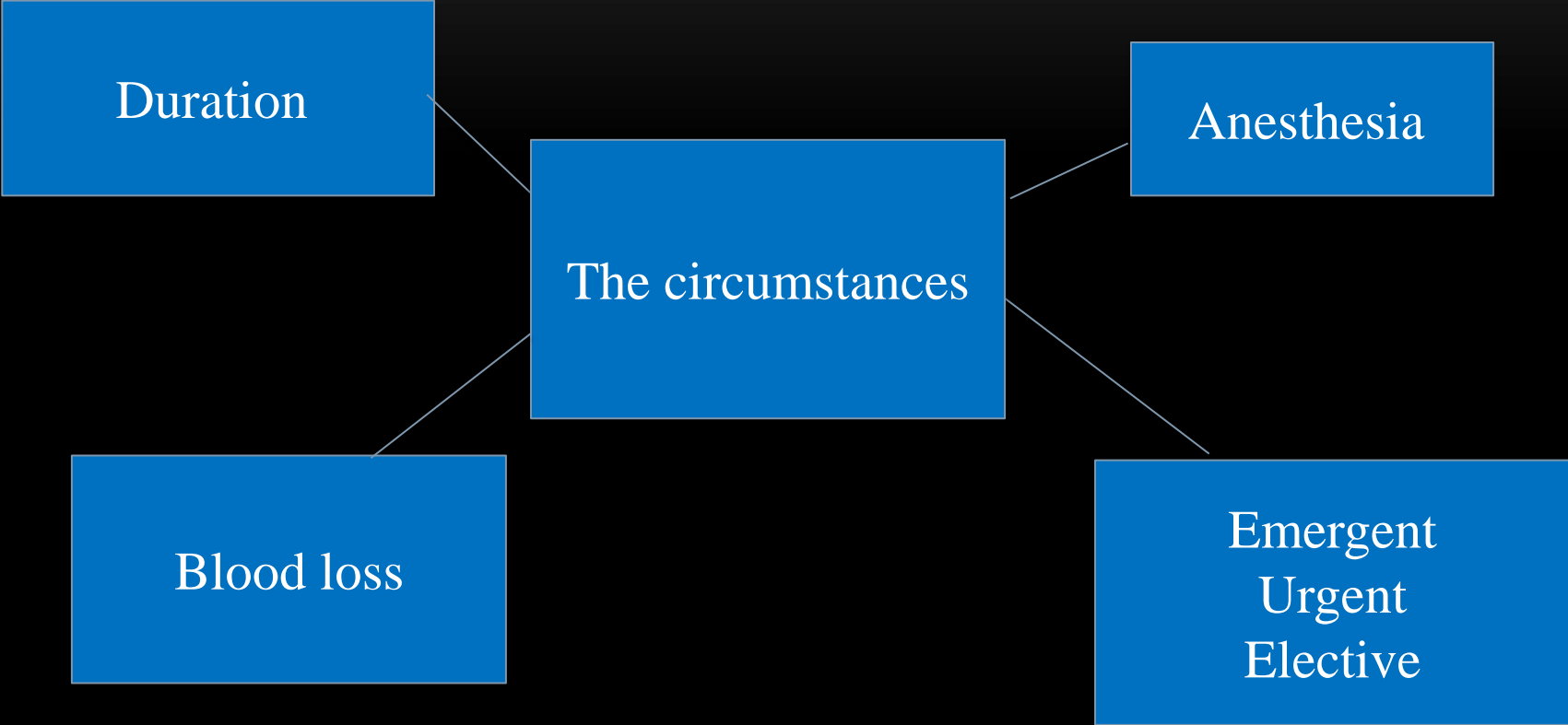
risk of surgery

**Circumstances
and timing**

- **patient-related risk factors: age, diabetes , HTN , renal failure, heart failure , PVD, ischemic heart disease**

Table 3 Surgical risk estimate according to type of surgery or intervention^{a,b}

Low-risk: < 1%	Intermediate-risk: 1-5%	High-risk: > 5%
<ul style="list-style-type: none">• Superficial surgery• Breast• Dental• Endocrine: thyroid• Eye• Reconstructive• Carotid asymptomatic (CEA or CAS)• Gynaecology: minor• Orthopaedic: minor (meniscectomy)• Urological: minor (transurethral resection of the prostate)	<ul style="list-style-type: none">• Intraperitoneal: splenectomy, hiatal hernia repair, cholecystectomy• Carotid symptomatic (CEA or CAS)• Peripheral arterial angioplasty• Endovascular aneurysm repair• Head and neck surgery• Neurological or orthopaedic: major (hip and spine surgery)• Urological or gynaecological: major• Renal transplant• Intra-thoracic: non-major	<ul style="list-style-type: none">• Aortic and major vascular surgery• Open lower limb revascularization or amputation or thromboembolectomy• Duodeno-pancreatic surgery• Liver resection, bile duct surgery• Oesophagectomy• Repair of perforated bowel• Adrenal resection• Total cystectomy• Pneumonectomy• Pulmonary or liver transplant



Risk assessment

- Clinical risk indices
 - Revised Cardiac Risk Index (RCRI)
 - National Surgical Quality Improvement Program (NSQIP)

Revised Cardiac Risk Index

Table 4 Clinical risk factors according to the revised cardiac risk index⁴³

	Risk of MI, arrest, or death 30 days after surgery
<ul style="list-style-type: none">• Ischaemic heart disease (angina pectoris and/or previous myocardial infarction^a)	
<ul style="list-style-type: none">• Heart failure	0
<ul style="list-style-type: none">• Stroke or transient ischaemic attack	0.4%
<ul style="list-style-type: none">• Renal dysfunction (serum creatinine >170 $\mu\text{mol/L}$ or 2 mg/dL or a creatinine clearance of <60 mL/min/1.73 m²)	1
<ul style="list-style-type: none">• Diabetes mellitus requiring insulin therapy	0.9%
	2
	6.6%
	≥ 3
	11%

Table 9 Unstable cardiac conditions

- Unstable angina pectoris
- Acute heart failure
- Significant cardiac arrhythmias
- Symptomatic valvular heart disease
- Recent myocardial infarction^a and residual myocardial ischemia

TOOLS

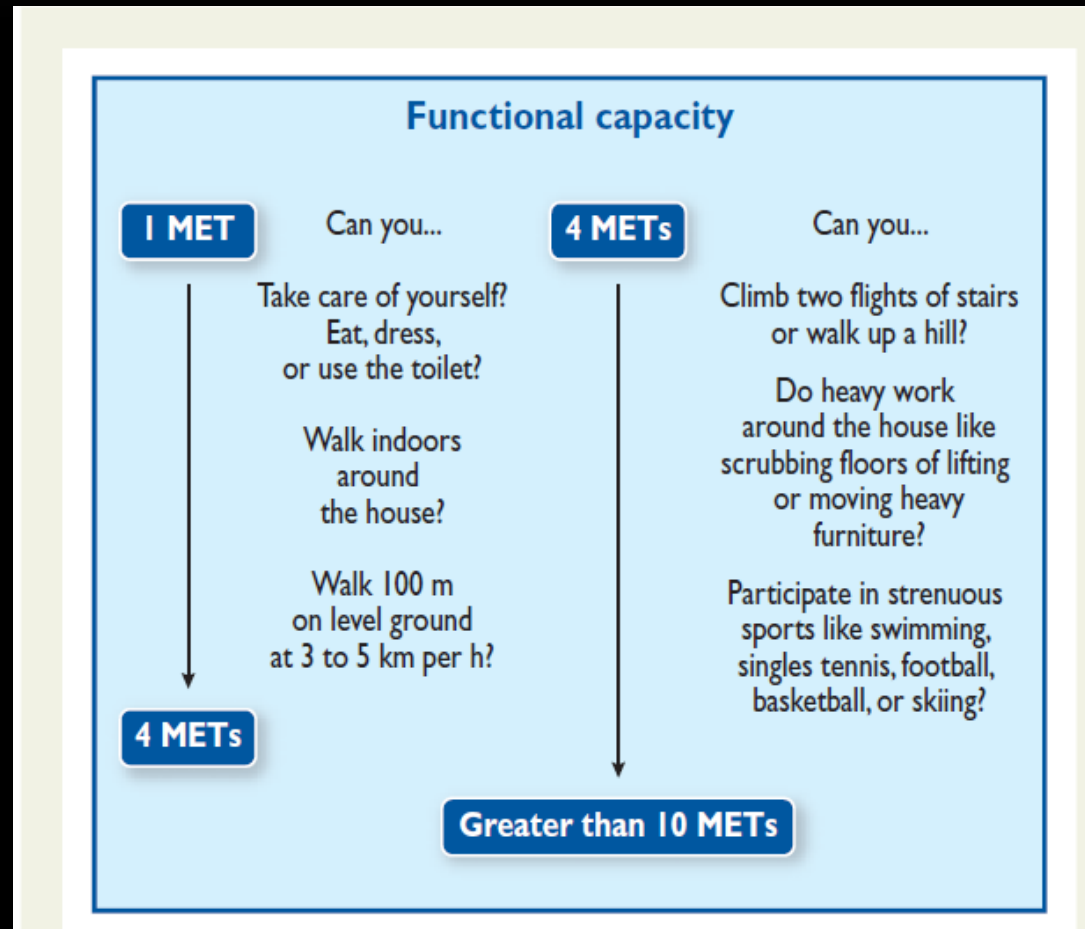
- Focused history and physical examination
- Labs
- ECG
- Assessment of LV function
- Stress Testing

HISTORY

- Symptoms:
- Angina
- Dyspnea
- Syncope
- Palpitations
- History of heart disease
- HTN,DM , CVA ,PVD

FUNCTIONAL CAPACITY

- Metabolic equivalents (1 MET resting oxygen uptake in a sitting position).



- ❖ (4 METs) poor functional capacity ,increased incidence of post-operative cardiac events
- ❖ High functional capacity –excellent prognosis, even in the presence of stable IHD or risk factors

PHYSICAL EXAMINATION

- Murmur
- JVP
- Crackles
- Limb edema
- Peripheral pulses

ECG

- Symptomatic
- Risk factors
- Intermediate-high risk surgery

BLOOD TESTS

- routine testing not indicated
- Troponin, bNP -may be considered
- High risk patients

CHEST X-RAY

- Routine chest X-ray before non-cardiac surgery is not recommended without specific indications

ECHO

- Routine echo is not recommended for low-intermediate risk surgery

STRESS TEST

- Recommended in high risk surgery for high risk patients
- Not recommended before low risk **regardless** of the clinical risk

Heart failure

- Delay elective surgery with decompensated HF
- For mod-high risk surgery : Echo +/- BNP
- Optimize preoperative medications

Valvular heart disease :

- Do ECHO in suspected or established VHD mod-high risk surgery
- Aortic stenosis

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The majority of patients with stable heart disease can undergo low and intermediate-risk surgery without additional evaluation

CASE #2

- a 62-year-old man
- His AAA has been gradually increasing in size
- elective open repair
- DM ,HTN ,CAD , CKD
- No chest pain, cough or shortness of breath
- mostly sedentary
- aspirin, carvedilol, insulin glargine, enalapril

High risk

RCRI 3 > 10 %

POOR FC

WHAT DO YOU DO ?

- Proceed with surgery without additional testing or management.
- Proceed with surgery with an increase of his beta-blocker dose.
- Perform stress test.
- Recommend against surgery.

CASE#2

- Cardiac scan -Larger eversible defect,territory-LM
- PTCA, LT-MAIN 70 %
- multidisciplinary team
- PTCA -DES TO LM

SUMMARY

- Perioperative cardiac complications are a common cause of morbidity and mortality
 - Better evaluation and medical optimization improves the outcome
 - Stable patients may undergo intermediate risk surgery without further investigations
 - Particular challenges in heart failure and valvular heart disease
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Thank You