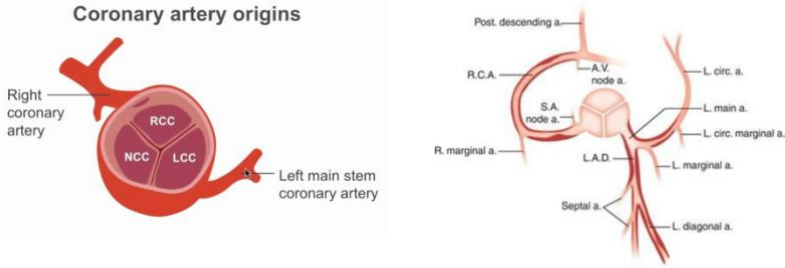


\* History := John H. Gibbon (heart-lung machine)

\* Coronary artery anatomy



- when stenosis happen, putting bypass should be after stenosis in location

- reaching coronary artery is done by entering from peripheral artery mostly radial artery (angiography)

5. complicated MI  
6. Anomalies of CA

\* Management

1) Indication

2) Preoperative evaluation

3) Conduits decision (graft vs. stent)

4) operation decision

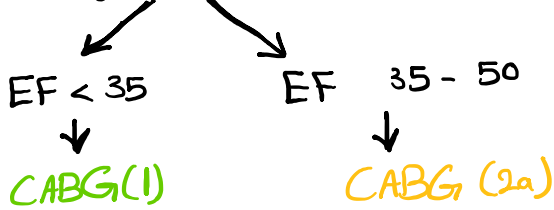
5) ERAS

1. three vessels disease with DM & ↓ EF
2. Lt main Coronary artery (Distal)
3. high risk of PCI or non-suitable PCI
4. complicated PTCA

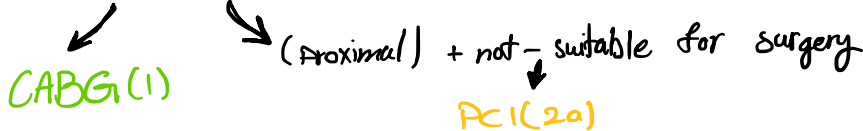
- 1- respiratory
- 2- renal
- 3- infection
- 4- carotid
- 5- frailty
- 6- Risk assessment
- 7- liver
- 8- Thyroid
- 9- medication
- 10- Coagulopathy

Aspirin never stopped at all

- left ventricular dysfunction & multivessel CAD



- left main CAD



- Multivessel CAD (no ↓ EF or proximal lesion)

↓ Surgery (2b) (ما حد بعلى جراحه اكتم)

- 1 or 2 vessels not-involving proximal LAD

↓ coronary revascularization (3) ↓ no benefit (just stenting)

CLASS (STRENGTH OF RECOMMENDATION)	Benefit >>> Risk
<b>CLASS 1 (STRONG)</b>	Benefit >>> Risk
Suggested phrases for writing recommendations:	
• Is recommended	
• Is indicated/useful/effective/beneficial	
• Should be performed/administered/other	
• Comparative-Effectiveness Phrases:	
-- Treatment/strategy A is recommended/indicated in preference to treatment B	
-- Treatment A should be chosen over treatment B	
<b>CLASS 2a (MODERATE)</b>	Benefit >> Risk
Suggested phrases for writing recommendations:	
• Is reasonable	
• Can be useful/effective/beneficial	
• Comparative-Effectiveness Phrases:	
-- Treatment/strategy A is probably recommended/indicated in preference to treatment B	
-- It is reasonable to choose treatment A over treatment B	
<b>CLASS 2b (WEAK)</b>	Benefit > Risk
Suggested phrases for writing recommendations:	
• May/might be reasonable	
• May/might be considered	
• Usefulness/effectiveness is unknown/unclear/uncertain or not well-established	
<b>CLASS 3: No Benefit (MODERATE)</b>	Benefit = Risk
(Generally, LOE A or B use only)	
Suggested phrases for writing recommendations:	
• Is not recommended	
• Is not indicated/useful/effective/beneficial	
• Should not be performed/administered/other	
<b>Class 3: Harm (STRONG)</b>	Risk > Benefit
Suggested phrases for writing recommendations:	
• Potentially harmful	
• Causes harm	
• Associated with excess morbidity/mortality	
• Should not be performed/administered/other	

LEVEL (QUALITY) OF EVIDENCE†
<b>LEVEL A</b>
• High-quality evidence‡ from more than 1 RCT
• Meta-analyses of high-quality RCTs
• One or more RCTs corroborated by high-quality registry studies
<b>LEVEL B-R (Randomized)</b>
• Moderate-quality evidence‡ from 1 or more RCTs
• Meta-analyses of moderate-quality RCTs
<b>LEVEL B-NR (Nonrandomized)</b>
• Moderate-quality evidence‡ from 1 or more well-designed, well-executed nonrandomized studies, observational studies, or registry studies
• Meta-analyses of such studies
<b>LEVEL C-LD (Limited Data)</b>
• Randomized or nonrandomized observational or registry studies with limitations of design or execution
• Meta-analyses of such studies
• Physiological or mechanistic studies in human subjects
<b>LEVEL C-EO (Expert Opinion)</b>
• Consensus of expert opinion based on clinical experience

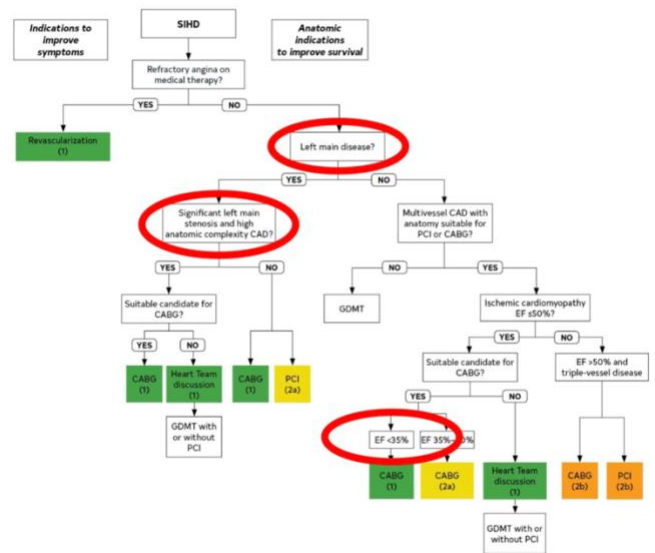
COR and LOE are determined independently (any COR may be paired with any LOE). A recommendation with LOE C does not imply that the recommendation is weak. Many important clinical questions addressed in guidelines do not lend themselves to clinical trials. Although RCTs are unavailable, there may be a very clear clinical consensus that a particular test or therapy is useful or effective.

† The outcome or result of the intervention should be specified (an improved clinical outcome or increased diagnostic accuracy or incremental prognostic information).

‡ For comparative effectiveness recommendations (COR 1 and 2a; LOE A and B only), studies that support the use of comparator verbs should involve direct comparisons of the treatments or strategies being evaluated.

§ The method of assessing quality is evolving, including the application of standardized, widely-used, and preferably validated evidence grading tools; and for systematic reviews, the incorporation of an Evidence Review Committee.

COR indicates Class of Recommendation; EO, expert opinion; LD, limited data; LOE, Level of Evidence; NR, nonrandomized; R, randomized; and RCT, randomized controlled trial.



- DM patients benefit with surgery more than PCI
- if the case treatment become unclear, the heart team should make a decision regarding to :-
  - 1) coronary anatomy
  - 2) Comorbidities
  - 3) Procedural factors
  - 4) Patient factors

\* Conduits decision → choosing the graft to do one bypass

↳ arteries better than veins

- BIMA is the best choice

(LIMA & RIMA)

↳ But one risk of infection increases 2-4% specially in

DM, smokers & obese patients

- IMA is a must (mainly left), then to second graft use radial artery

- venous graft put in an opposite-direction due to its valve & just stay to 10 years but easier to deal with :-

- conduits combination mostly use :- 2 veins & LIMA

arteria:

- LIMA (mostly)
- RIMA
- RA
- GEA
- IEA

Ven : second

- GSV (mostly) → cheap & less mortality rate
- SSV
- Arm V.

\* ERAS :-

- 1) Preoperative
- 2) intra "
- 3) post "

→ to not let patients to stay in hospital for long duration.  
SO, no UTI, D-D interaction, DVT.

\* Surgical techniques :- mostly sternotomy, then put the proximal part of vessel on aorta & the distal part distal to the stenosis, with heart-lung machine

while the heart is beating, we don't arrest the heart here

← 2) Star fish device & Octopus device → over the coronary

↓ on the apex of the heart to move it easily

Take home messages :-

- 1] Treatment decision based on clinical indication, regardless of sex, race & ethnicity
- 2] if optimal treatment strategy is unclear, heart team approach is recommended
- 3] Left main disease → surgical revascularization
- 4] Radial artery is preferred to the use of saphenous vein in surgical revascularization
- 5] DM & triple-vessels disease should be treated with surgical revascularization