Cardiacsurgery procedures for atherosclerotic disease

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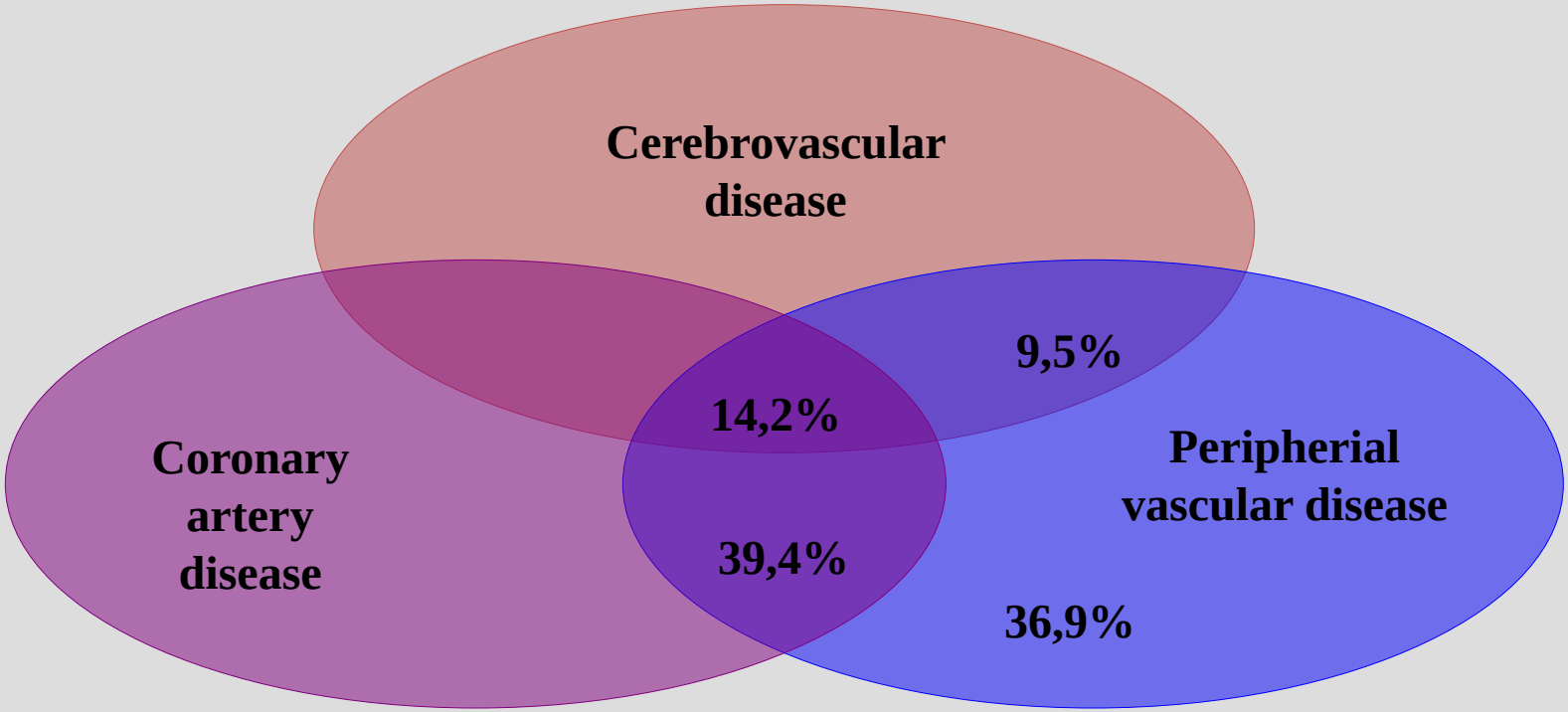
Atherosclerosis is a systemic disease



Bhatt DL, et al; for the REACH Registry Investigators. *JAMA*. 2006;295:180-189.

Cardiacsurgery procedures for atherosclerotic disease

1.CABG and carotidal surgery

2.CABG and peripheral surgery

3.CABG and carotidal and peripheral surgery

4. CABG and surgery for abdominal aneurysam

5. CABG and surgery for carotidal and peripheral disease and surgery for abdominal aneurysm

- **Carotid disease at current cardiac surgical population**

  carotid stenoses > 50% - 17-22%

  carotid stenoses > 80% - 6-12%

- **Preoperative stroke & carotid stenosis during CABG**

  carotid stenoses < 50% < 2%

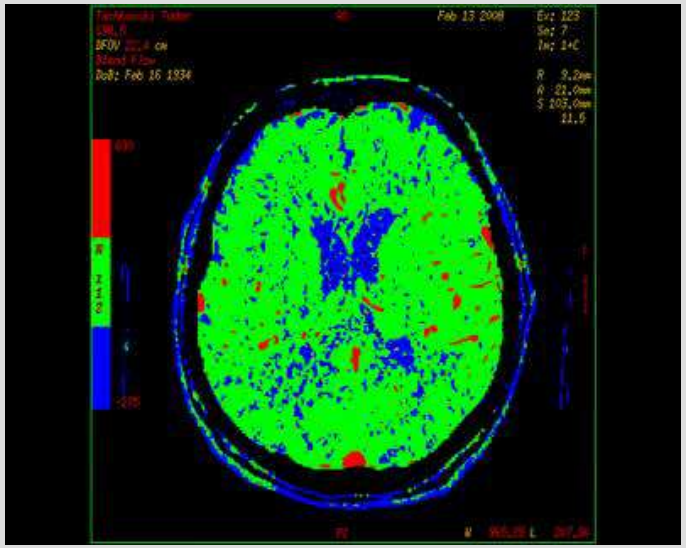
  carotid stenoses 50-80% 10%

  carotid stenosis > 80% 11-18.8%

  - *ACC/AHA Guidelines for Coronary ;*

    Artery Bypass Graft Surgery

  - *JACC Vol.34,No.4, Oct.2008:1262-1347*



Stroke and CABG

23% of patients who suffered

- **peri-mortality? (1-2%)**
- **stroke mortality after CABG- 2-3%**
- **patients invalidity – 2-3%**
- **Significantly increased cost and hospital stay – 25%**
- **Risk increases with age: < 50y (0.5%), > 80y (8-9%)**

Treatment of combined coronary and carotid artery disease. Curr Opin Cardiol. 2003;18: 447-453.

Surgical tactics to reduce the risk

- **When surgery of both carotid and coronary disease is planned , the most common approach is to perform the operation in a staged manner , in which the patient first has carotid surgery followed by coronary bypass in 1-5 days**

- **Stroke risk is increased if a reversed-stage procedure is used in which the coronary bypass operation precedes the carotid endarterectomy by >1 days**

- *ACC/AHA Guidelines for Coronary ; Artery Bypass Graft Surgery*
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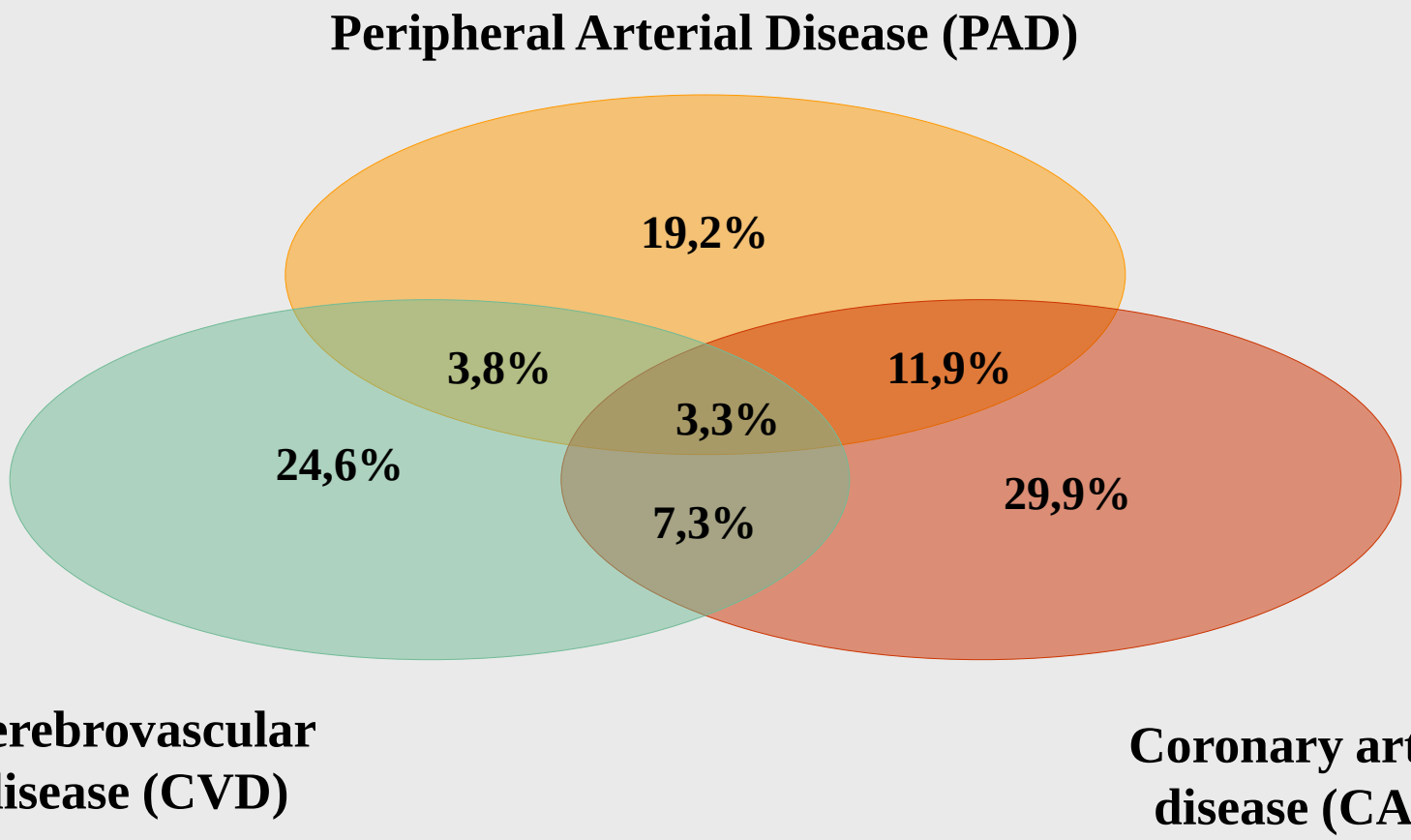
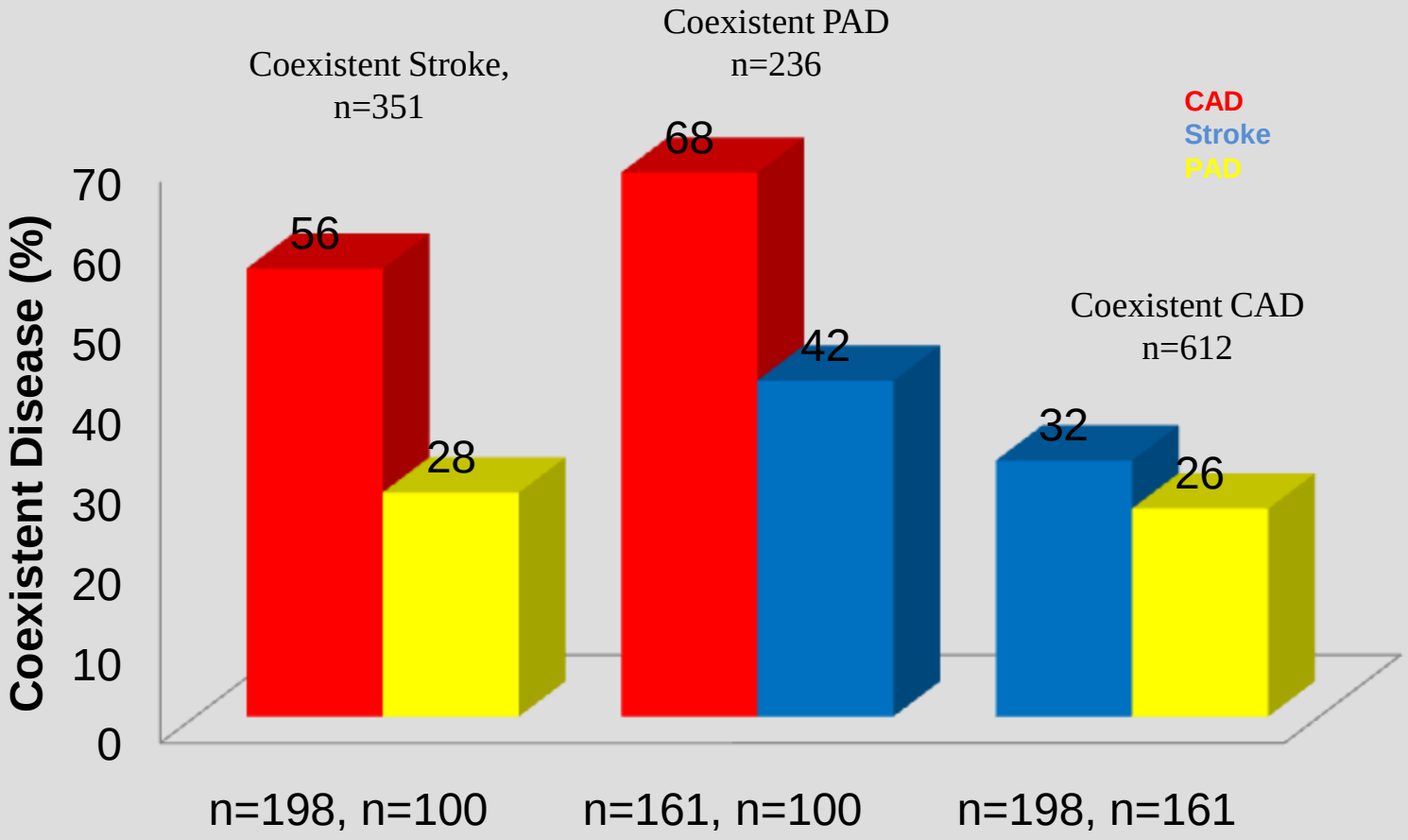
Atherothrombosis – symptomatic atherosclerosis in CAPRIE (overlap between PAD, CAD and CVD)

CAPRIE[1] (*n* = 19185)



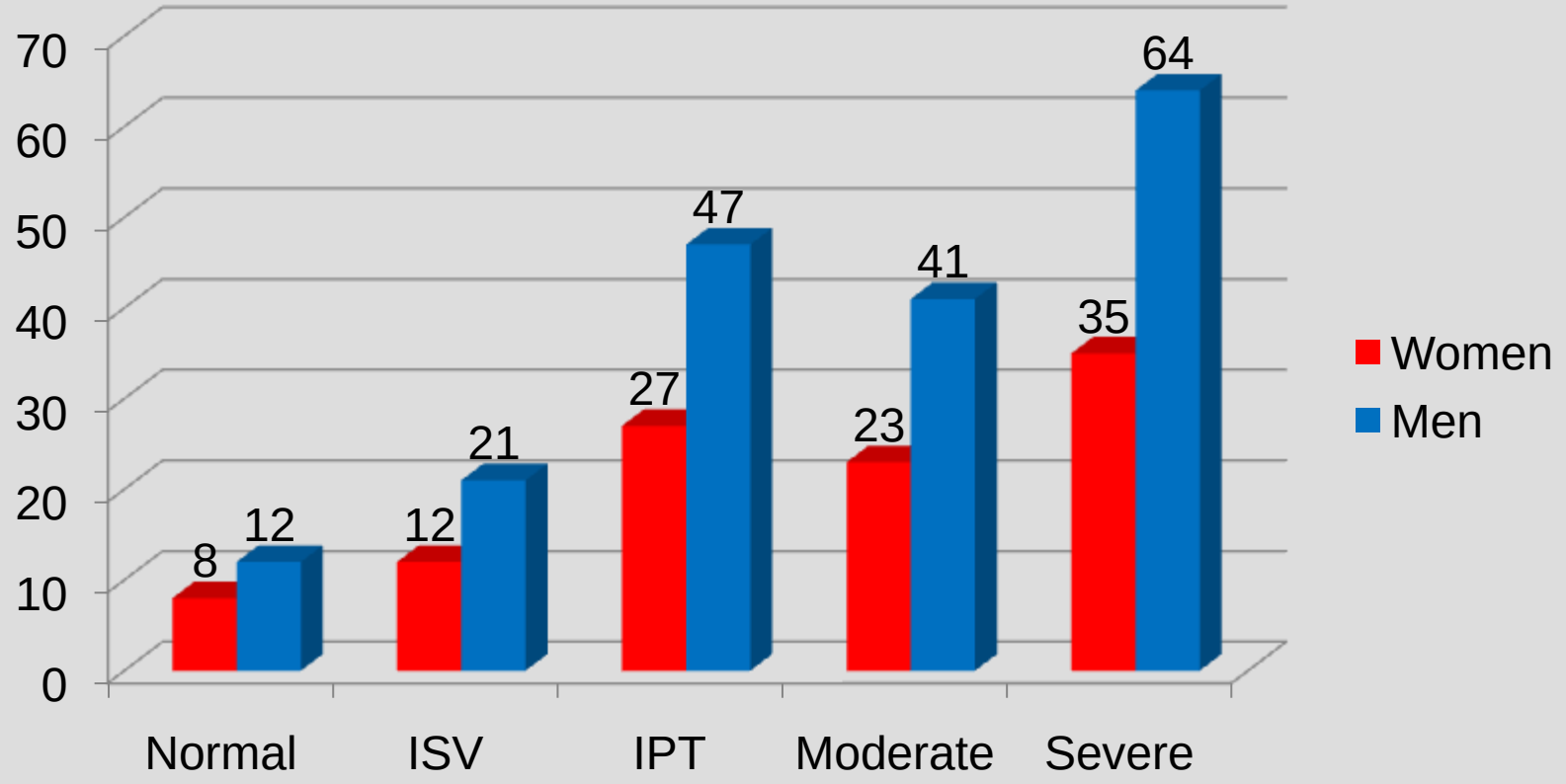
[1]*CAPRIE Steering Committee. Lancet 1996;348:1329–1339.*

Coexistent Vascular Disease



Ness J and all,J.Am.Geriatr.Soc.2009;47:1255-1256

Mortality from Cardiovascular Disease is Related to Severity of PAD



ISV-isolated small vessel, IPT isolated tibialis post.Moderate PAD –Index 0,6-0,9, Severe – Index <0,6

Ness J and all,J.Am.Geriatr.Soc.2009;47:1255-1256

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CABG and Abdominal aneurysm

Evidence exists to advocate concomitant repair in patients with impaired left ventricular and pulmonary function because survival after two separate procedures is less certain than after a single procedure

Westaby S, Parry A, Grebenik CR, et al. Combined cardiac and abdominal aortic aneurysm operations. The dual operation on cardiopulmonary bypass. J Thorac Cardiovasc Surg 1992;104:990-995.

The actual risk of aneurysm rupture after CABG, however, has not been consistently quantified in the literature

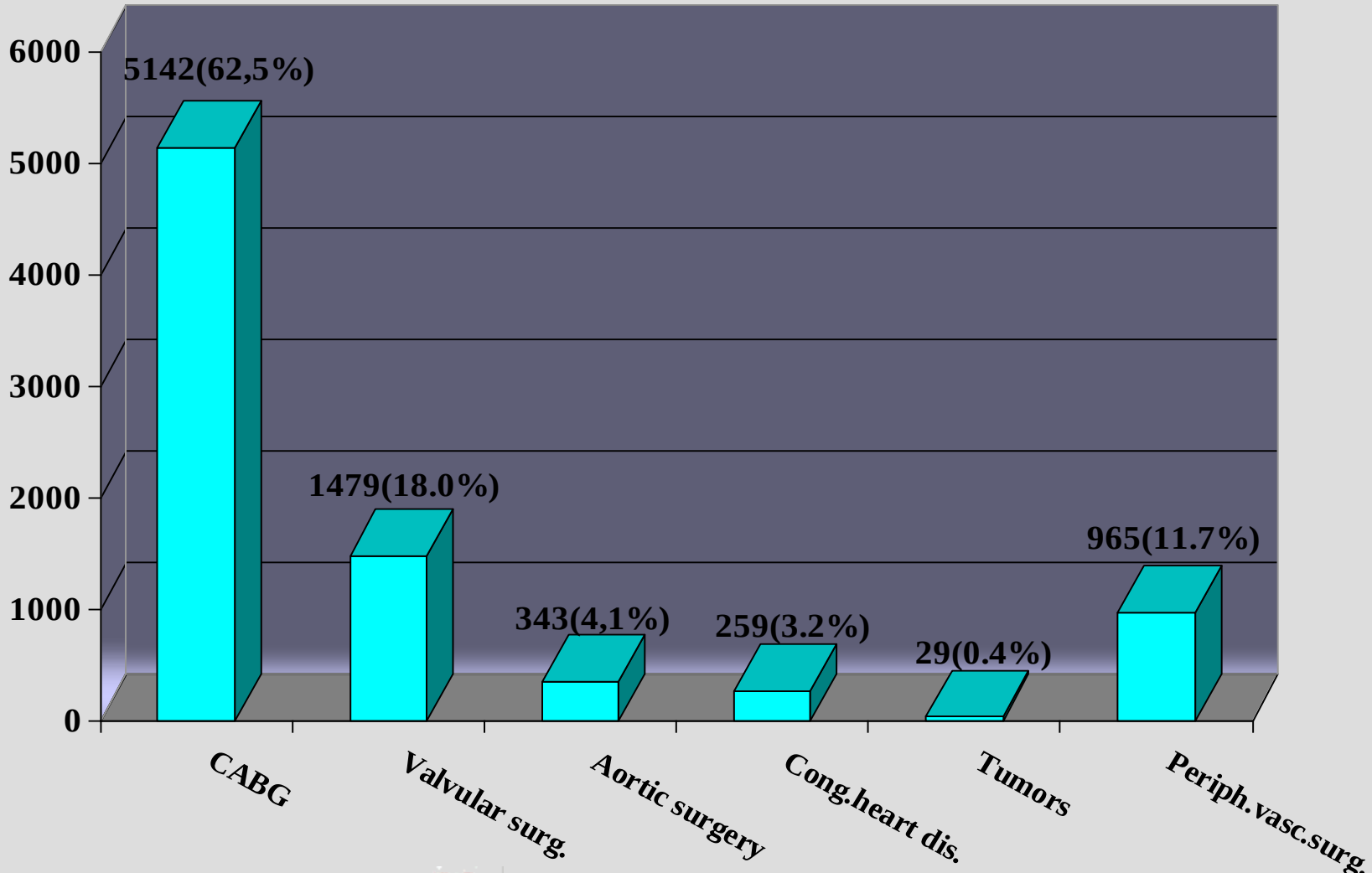
El-Sabrout RA, Reul GJ, Cooley DA. Outcome after simultaneous abdominal aortic aneurysm repair and aortocoronary bypass. Ann Vasc Surg 2002;16:321-330.

The inability to predict which patients are most likely to rupture their AAAs combined with the increased morbidity associated with the concomitant procedure has led some surgeons to advocate a staged repair with interprocedural intervals of 7 to 14 days

Wolff T, Baykut D, Zerkowski HR, et al. Combined abdominal aortic aneurysm repair and coronary artery bypass: presentation of 13 cases and review of the literature. Ann Vasc Surg 2006;20:23-29.

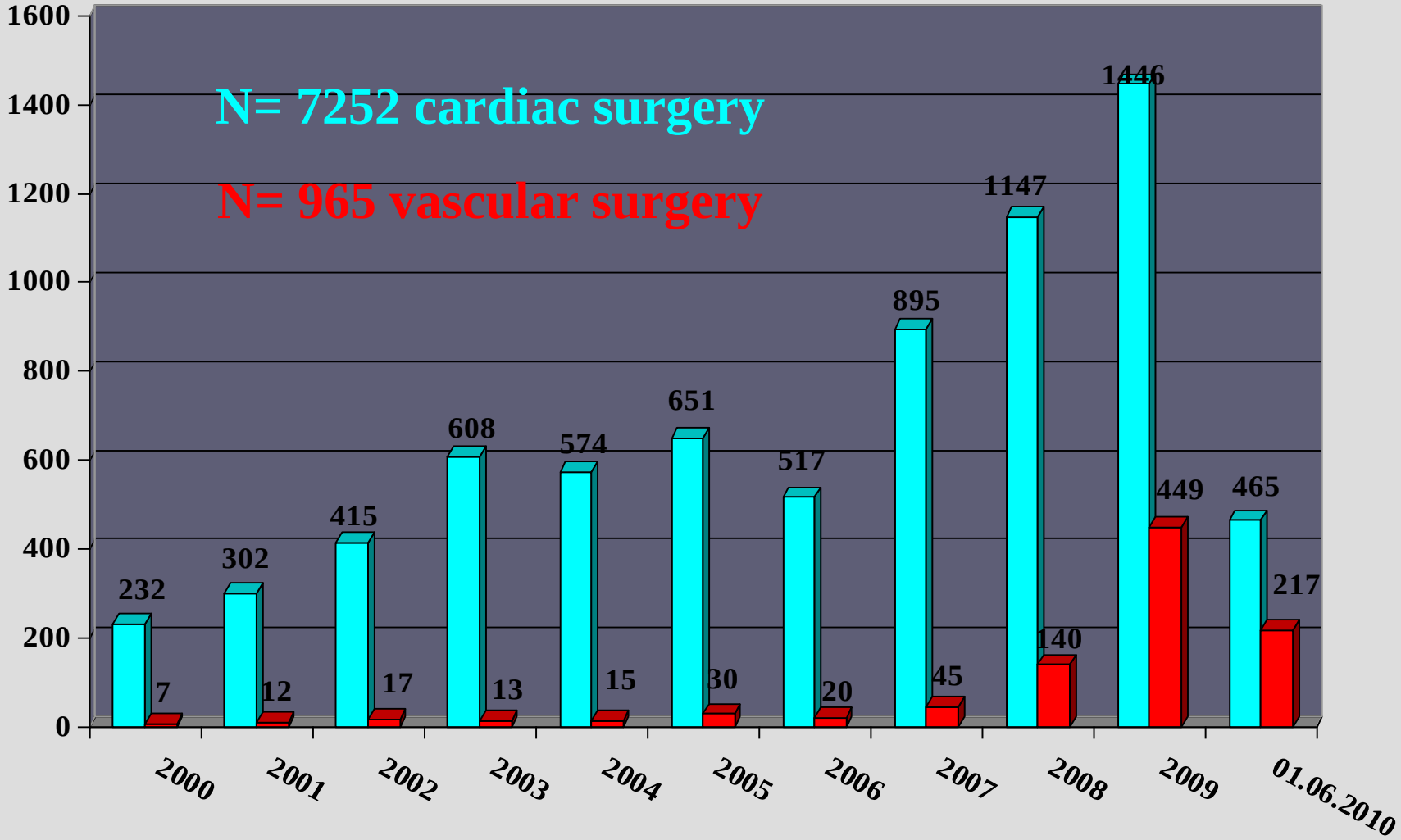
Our experience

Type of surgery (01.06.2010) N = 8217pts



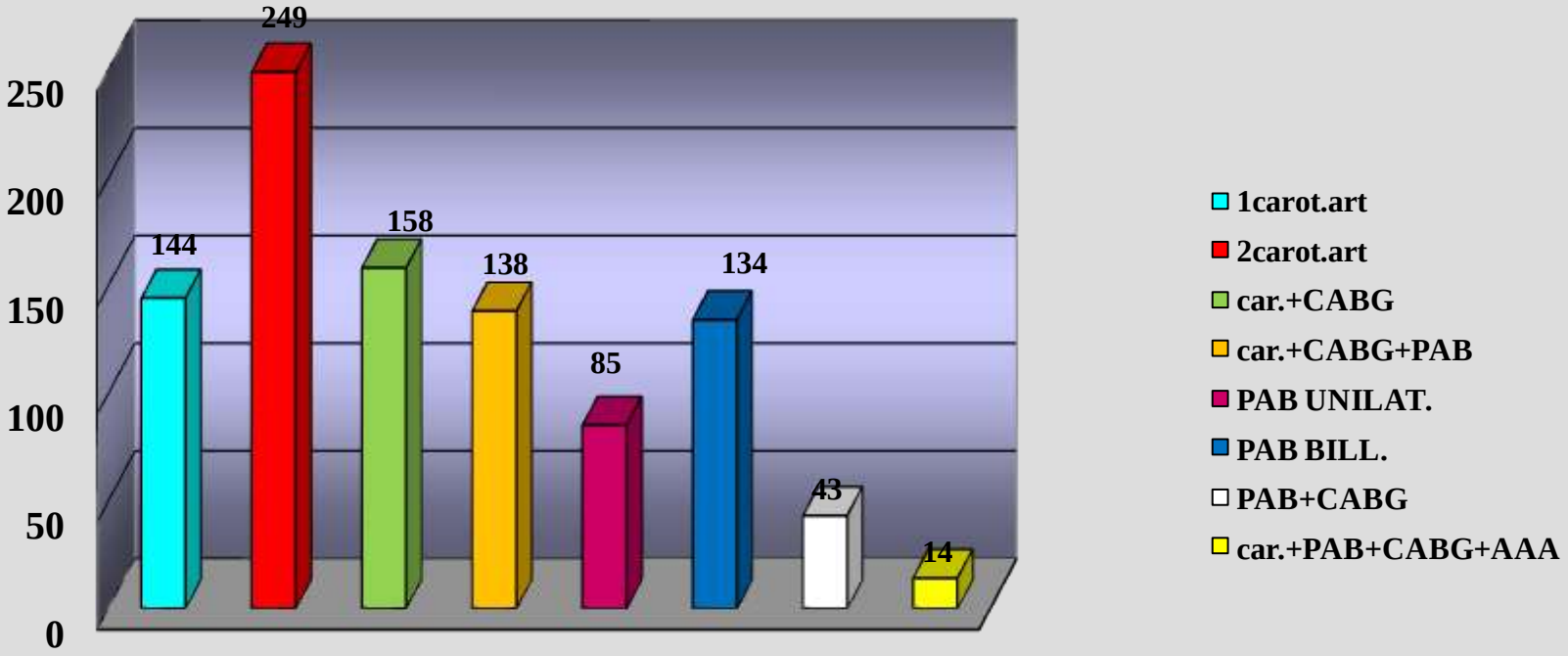
Our experience

Number of operations per year N=8217pts.

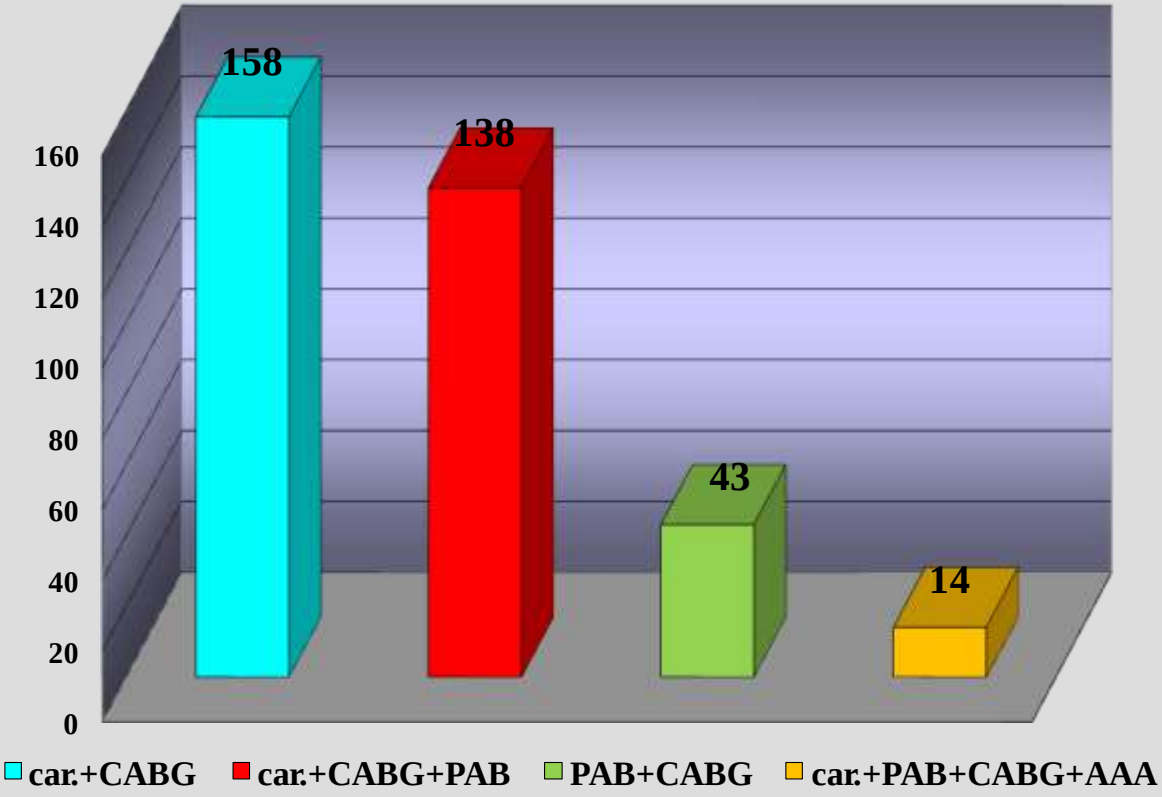


Our experience

Vascular surgery N= 965 (11,7%) pts.



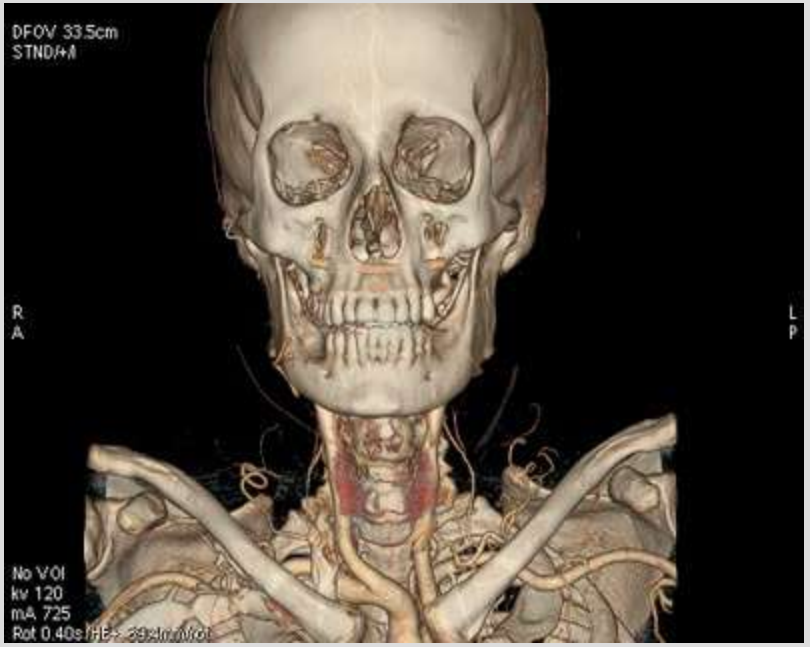
Our experience
Vascular surgery and CABG
N= 353 (7,1%) pts. –(total No CABG =5142)



Cardiovascular procedures for atherosclerotic disease -our strategies

Early diagnostic

- **echocardiography**
- **angio**
- **64 MSCT**



Patients with Doppler signs for carotidal or peripheral disease

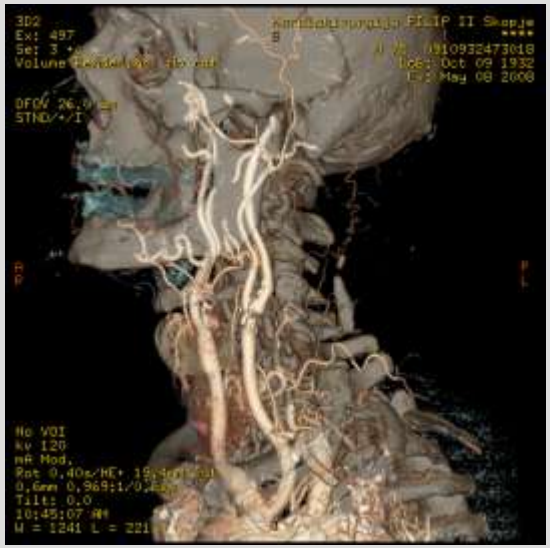
- **64 MSCT scan**

Cardiovascular procedures for atherosclerotic disease -our strategies

1.Asymptomatic CAD and carotidal disease
2. Symptomatic CAD and carotidal disease
3. Peripheral artery disease and asymptomatic CAD
4. Gangrene and CAD
5.Carotidal +peripheral+CAD
6. Abdominal aneurysm + carotidal+peripheral+CAD

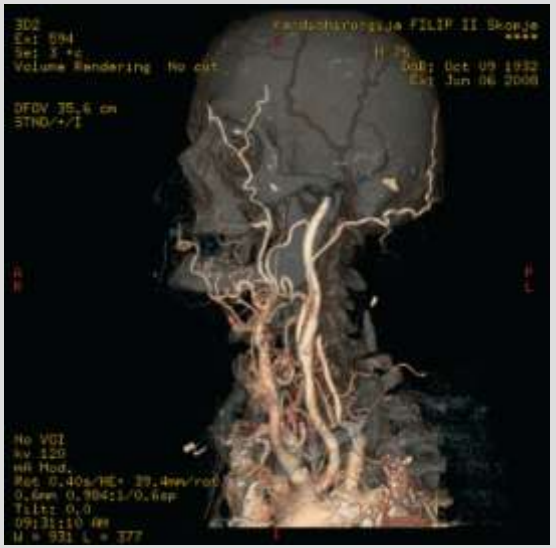
- First step - carotidal surgery
↓↑
- Second step- peripheral surgery
↓↑
- Third step – CABG
↓↑
- Fourth step- abdominal aneurysm surgery
- EVAR

Carotidal surgery and CABG N = 158 pts



64 MSCT preop

Surgery

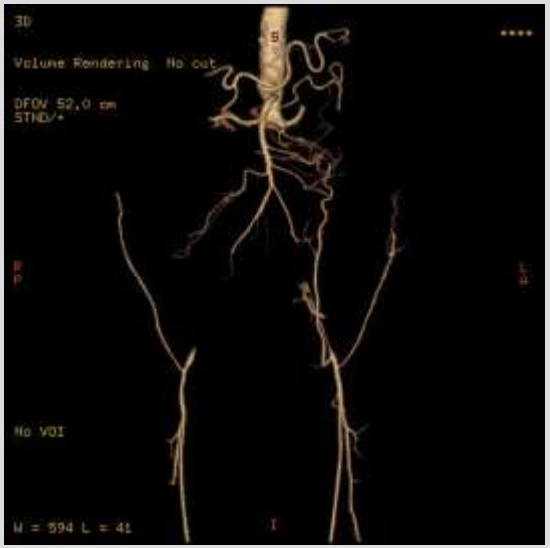


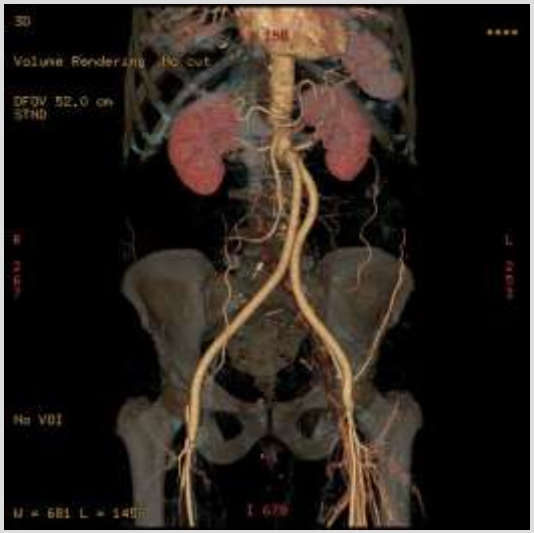
64 MSCT post op.

N= 158pts x= 64,5 ±8,7y First step carotidal surg Second step CABG
10pts simultaneous surg –CABG + carotidal surg.
Complications:
2 pts postop. stroke – imidiate reop. (1 survived; 1 died)
3pts pulm.oedema – (1 survived ; 2 died – CAD +severe valv stenosis)
3 pts acute coronary syndrom – urgent CABG
Mortality rate 1,89% (3pts)

Carotidal surgery and CABG and peripheral vascular surgery N = 138 pts

64 MSCT preop

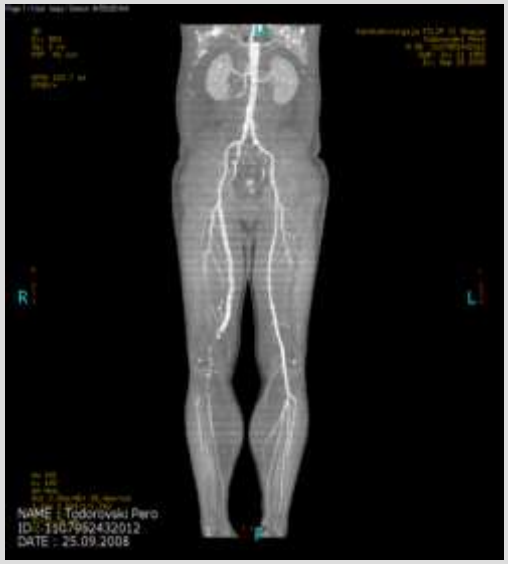




64 MSCT post op.

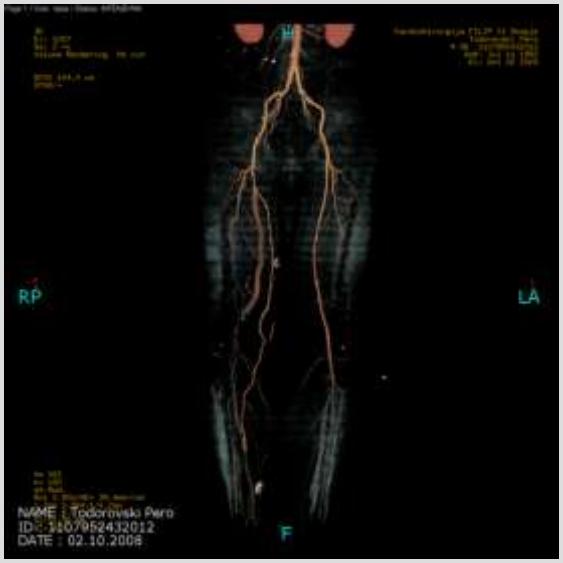
N= 138pts x= 67± 9,5 y
First step carotidal surg.
Second peripheral surg.
Third CABG
Complications – acute cor sy -2
Pulm.oedema 1
Amputatio 4 – patients with Fontane IV pre-operativelly

Peripheral by-pass and CABG No- 43 pts



Pre-op . 64MSCT

Surgery



Post-op . 64 MSCT

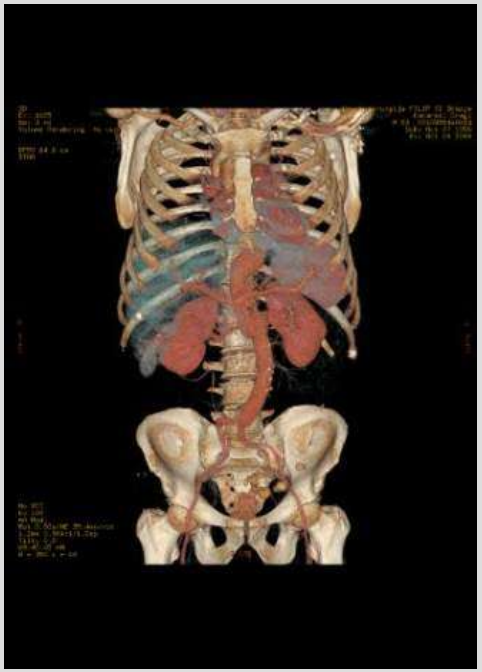
X= 67±9,8 y
Ist step- periferial by-pass
II nd step - CABG

Awake-spinal anesthesia L2/3-L3/4

Patient –discharge after 1st postoperative day

Complications
Pilmonary oedema – 2 (1surv.1died- severe aortic stenosis and CAD)
Mortality rate 2,3% (1pat)

CABG and abdominal aneurysm N=14pts.



64 MSKT pre-op.

Surgery

64 MSKT posT op.

X= 67±9,8 y

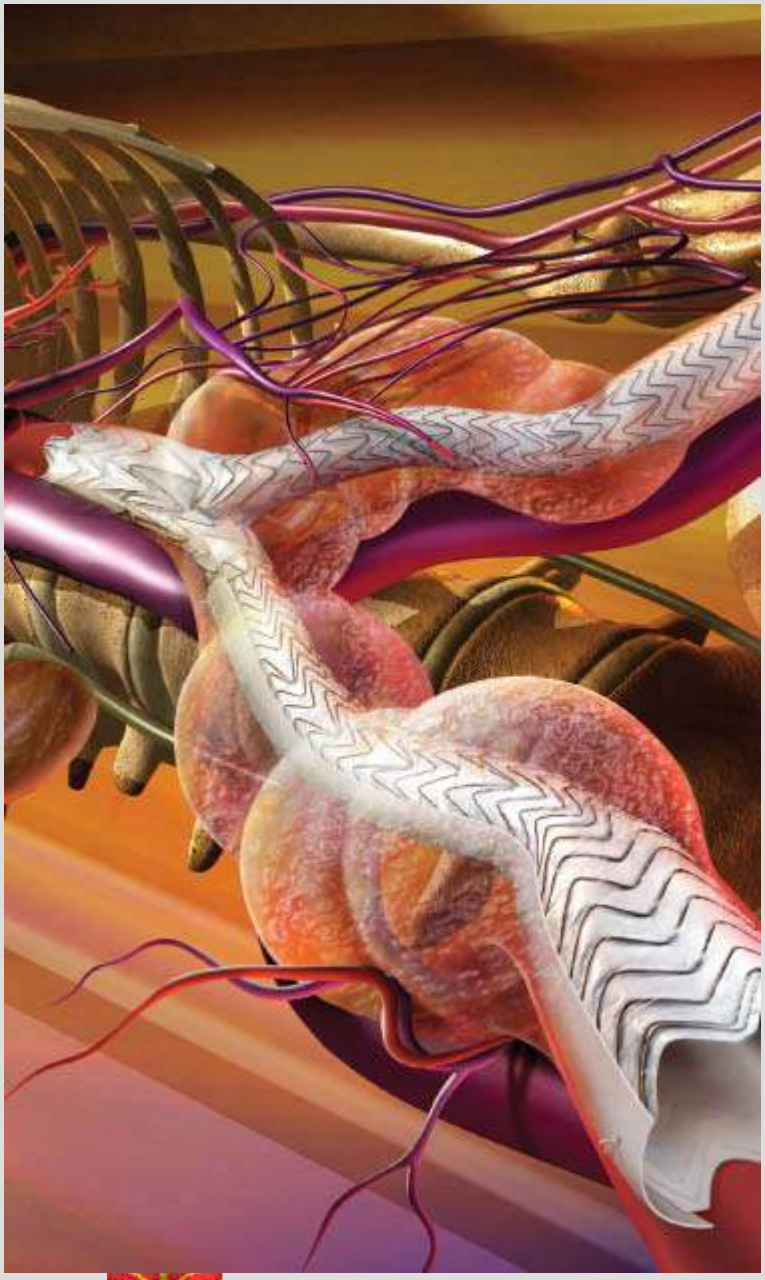
Surgical steps:

1. **carotidal surgery**
2. **peripheral surgery**
3. **CABG**
4. **abdominal aneurysm**

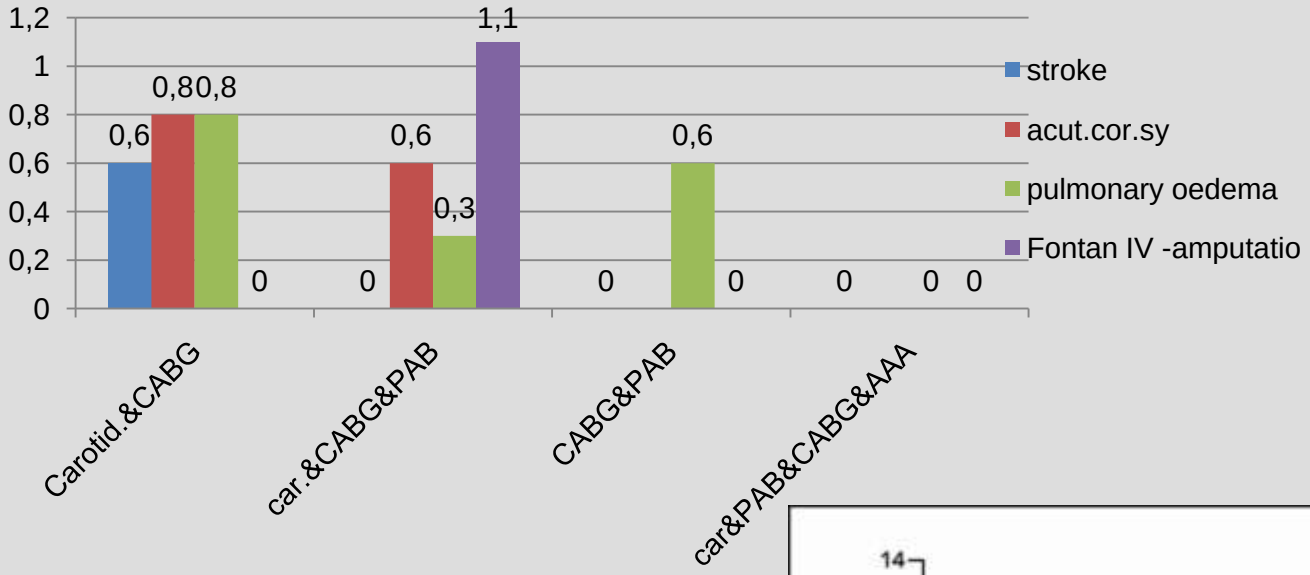
No complications
Mortality rate 0%

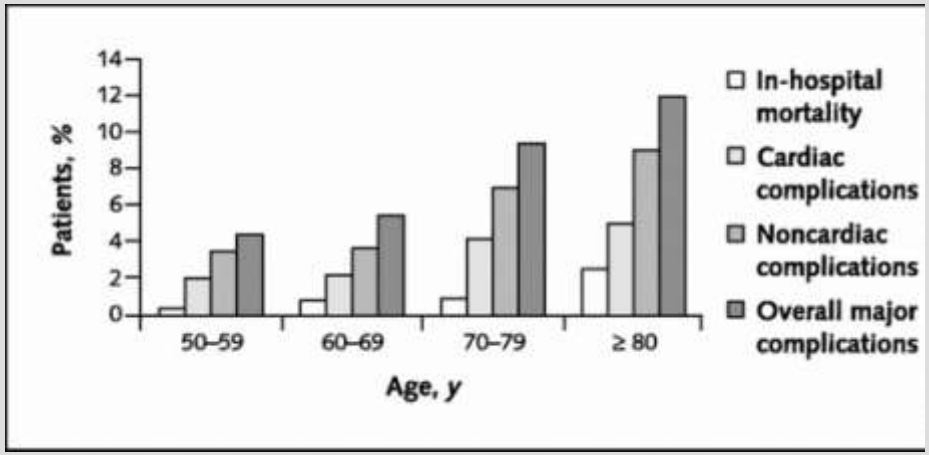
Pre and post operative evaluation in high risk patient

EVAR



Complications
- our experiences





Polanczyk, C. A. et. al. Ann Intern Med 2009;134:637-643

Annals of Internal Medicine

Conclusion:

-These severely ill, high-risk patients require careful surgical planning.

-Staged procedures are associated with less morbidity and mortality than synchronous procedures

-The incidence of postoperative stroke is substantially reduced when avoiding cardiopulmonary bypass in patients with present carotidal disease and peripheral vascular disease.

-- Planned by-pass surgery is safe in patients with peripheral vascular disease, with acceptable results.

Conclusion:

-Significant CAD in coexistence with a large and/or symptomatic AAA presents a therapeutic conundrum.

- Based upon the experience of our institution and the literature, concomitant procedures may be offered for large, symptomatic AAAs coexistent with significant, correctable CAD.

- Patients with stable or asymptomatic AAA and CAD requiring open repair may be managed with a staged approach with CABG and AAA repair within two weeks to minimize rupture risk.