PCI ΣΕ ΚΑΚΟΗΘΕΙΕΣ

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• ROTABLATOR PROCTOR (BOSTON)
• TAVI PROCTOR (MEDTRONIC)
Rationale

Increasing number of

- Cancer survivors
- Cancer treatments with CV side effects
- Oncological diseases requiring long-term treatment

[Graph showing estimated number of cancer survivors in the US with projections from 1970 to 2020]

Rationale

- **Treatment-related illness** exceeds mortality from cancer-recurrence
- **CVDs** one of the most frequent side effects
- **Cardiotoxicity**
  - direct effects on cardiac function and structure
  - accelerated development of CVD

Tukenova M et al. JCO.2010;28:1308-1315
Cardio-oncology
C-O has shown huge growth and development

- *increasing survival from cancer and CVD* with an increase in the prevalence of these two conditions combined
- **Most survivors from cancer therapy develop or die from CVD, more than from cancer recurrence**
- Patients suffering from cancer may have **CVD risk factors and/or a pre-existing CVD**, often concealed, enhancing the toxic effects of CT and RT
  - adequate and aggressive risk factor control
  - CV diagnostic work-up strongly enhance survival
- **Chemotherapy(CT) and Radiotherapy(RT) toxicity may develop many years after treatment.** Tight follow-up protocols to avoid long-term cardiac side effects are essential for adequate treatment
Possible CV complications of CT and/or RT

• Myocardial dysfunction and heart failure (HF)
• Coronary artery disease (CAD)
• Valvular heart disease (VHD)
• Arrhythmias – acquired LQT syndrome, atrial fibrillation and atrioventricular (AV) blocks
• Arterial hypertension
• Thromboembolic disease
• Peripheral vascular disease and stroke
• Pulmonary hypertension
• Pericarditis
CV Complications of Cancer Rx

- Myocardium
- Valves
- Arteries
- Conduction

Variable Extent

Acute (during cancer Rx)
Subacute (weeks-months post Rx)
Late (years post Rx)

HTN, VTE, Stroke, PVD
## Vasculopathy

### Carotid Artery Stenosis

![Carotid Artery Image](image)

### Vasculopathy

<table>
<thead>
<tr>
<th>Cause</th>
<th>Radiotherapy (mediastinal, head and neck) → &gt; 10 years after RxT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physiopathology</td>
<td>• Endothelial damage, Fibrosis, Accelerated atherosclerosis, medial necrosis</td>
</tr>
<tr>
<td>Location</td>
<td>• Small vessels and Medium or large vessels</td>
</tr>
<tr>
<td>Evaluation</td>
<td>• Echocardiography is the assessment <strong>method of choice</strong></td>
</tr>
<tr>
<td>Screening</td>
<td>• 5 to 10 years after exposure in high risk patients</td>
</tr>
<tr>
<td></td>
<td>• <strong>Earlier and/or more</strong> frequently if abnormal first examination</td>
</tr>
<tr>
<td>Treatment</td>
<td>• Significant stenosis <strong>may require</strong> stenting or surgery</td>
</tr>
</tbody>
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**ESC Congress Rome 2016**

#esccongress

www.escardio.org/ESC2016
## Coronary Artery Disease / Acute Coronary Syndrome

### Prevention / Treatment

<table>
<thead>
<tr>
<th></th>
<th>Prevention</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fluoropyrimidines</strong></td>
<td>(5-FU, capecitabine, gemcitabine)</td>
<td><strong>Vasodilators</strong></td>
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<tr>
<td></td>
<td></td>
<td><strong>Bolus- vs. continuous infusion</strong></td>
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<tr>
<td><strong>Platinum compounds</strong></td>
<td>(Cyclophosphamide, etc.)</td>
<td>Manage CV risk factors</td>
</tr>
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<td></td>
<td></td>
<td><strong>According to manifestation</strong></td>
</tr>
<tr>
<td><strong>Anti-VEGF</strong></td>
<td>(Bevacizumab, Sunitinib, Sorafenib, Pazopanib etc.)</td>
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<td></td>
<td></td>
<td><strong>According to manifestation</strong></td>
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<td><strong>Radiotherapy</strong></td>
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CV Long-term Surveillance Programs for Cancer Survivors

- **Cardiac dysfunction / heart failure**
  - after anthracyclines
  - after mediastinal radiation
- **Vascular/ Coronary artery disease**
  - after mediastinal radiation
  - after platinol-containing CT
- **Valvular disease**
  - after mediastinal radiation
REVASCULARIZATION in CA patients
Current or Prior Cancers Affect PCI Outcomes Differently

• Clinicians considering revascularization in patients with a current or prior diagnosis of cancer should therefore tailor care to account for these differences

• *colon cancer* is associated with the greatest risk of bleeding complications

• patients with *lung cancer* are at the greatest risk of mortality

• patents with a *current breast cancer* do not appear to have an increased mortality risk

• *such patients are almost always excluded from clinical trials and registries*
• patients with active cancer are at increased risk of **bleeding complications**

• challenges to the treating physicians as [**dual antiplatelet therapy (DAPT)**] may delay cancer surgery or place these patients at increased risk of bleeding events
Overall, patients with a current cancer diagnosis had higher in-hospital mortality and worse outcomes after their procedures than those with a historical cancer

- **l lung cancer** had the poorest outcomes of all cancer types, with greater risks of in-hospital mortality (OR 2.81; 95% CI 2.37-3.34) and any in-hospital complication (OR 1.21; 95% CI 1.10-1.36)
- **colon cancer** was independently associated with greater risks of any complication (OR 2.17; 95% CI 1.90-2.48) and bleeding (OR 3.65; 95% CI 3.07-4.35), but not with mortality (OR 1.39; 95% CI 0.99-1.95)
- **Current prostate cancer** was associated with increased bleeding risk (OR 1.41; 95% CI 1.20-1.65)
- **current breast cancer** was not linked to worse outcomes
- **patients with a metastatic cancer of any kind** had the poorest prognosis of any cancer group, with a higher risk of mortality and complications, including major bleeding events
  - **metastatic colon cancer** had the highest rate of major bleeding with nearly a fivefold increase
  - **metastatic lung cancer** was associated with a nearly fourfold increase in the risk of in-hospital death
CASE

- 67 FEMALE
- BREAST CANCER – MASTECTOMY AND RADIATION THERAPY 32 and 9 YEARS AGO
- INCREASING ANGINA
- NORMAL LV FUNCTION
- LHC:
  - NORMAL LCA
  - SEVERE HEAVILY CALCIFIED OSTIAL RCA SUBTOTAL OCCLUSION
RCA PCI

ROTA WIRE

ROTA 1.25 mm
RCA PCI

ROTA 1.5 mm

POST ROTA
RCA PCI

OSTIAL DES

POST DILATATION
RCA PCI – FINAL RESULT
6 MONTHS LATER

- Recurrent angina
- LHC
  - Normal LCA
  - RCA ostial restenosis
RCA RESTENOSIS
BALLOON HIGH PRESSURE – 26 ATM
NEW DES

DES

POST DILATION AT 28 ATM
4 YEARS LATER

• Patient asymptomatic
• Negative exercise test
IN CONCLUSION

• Many patients do not have PCI because of the belief that they are much higher risk than they actually are, or [they] have procedures without thought of potential sequelae

• Early discussions with oncology teams will very much help individualize the care of such patients and ensure that
  – patients are not declined PCI inappropriately because of perceived risks
  – when PCI procedures are undertaken, that they are undertaken in a manner that takes into account potential complications with the necessary precautions
Increased CV Risk of Cancer Survivors

Breast Cancer
Heart Failure after adj Anthracyclines

Hodgkin lymphoma
CV Disease

Childhood Cancer Survivors
CV Disease

Long-term surveillance programs needed

mod Van der Pal HJ J Clin Oncol. 2012 May 1;30(13):1429-37