Objectives

• Discuss the American Society of Clinical Oncology (ASCO) guidelines on the prevention and monitoring of cardiac dysfunction resulting from cancer therapy
• Discuss the strength of evidence of the ASCO recommendations
• Identify the gaps in knowledge regarding the cardiac dysfunction from cancer therapy

Clinical Questions

Which cancer patients are at increased risk for developing cardiac dysfunction?

Recommendation 1

- High dose anthracyclines (e.g., >250 mg/m² doxorubicin, ≥ 600 mg/m² epirubicin)
- High dose (>30 Gy) radiotherapy where heart is in the treatment field
- Lower dose anthracyclines (e.g., >250 mg/m² doxorubicin in combination with lower dose (<30 Gy) radiotherapy where heart is in the treatment field)
- Treatment with lower dose anthracyclines (e.g., >250 mg/m² doxorubicin), or trastuzumab alone, and presence of any of the following risk factors:
  - Multiple >5 CV risk factors, smoking, hypertension, diabetes, dyslipidemia, obesity
  - Older (>60 years of age) at cancer treatment
  - Comorbid cardiac condition (e.g., borderline low LVEF [50%–55%], history of myocardial infarction, moderate valvular heart disease)

No Determination of Risk

- Lower dose of anthracyclines (e.g. <250 mg/m² doxorubicin, ≤ 600 mg/m² epirubicin) or trastuzumab alone, and no additional risk factors
- Lower dose (<30 Gy) radiotherapy where the heart is in the treatment field, and no additional cardiotoxic therapeutic exposures or risk factors
- Kinase inhibitors

Clinical Questions

Which preventive strategies minimize risk prior to initiation of therapy?

Recommendation 2.1

Avoid or minimize the use of potentially cardiotoxic therapies if established alternatives exist that would not compromise cancer-specific outcomes

Evidence-based, beneficial outcome harms, Strength of recommendation: Strong

Recommendation 2.2

Complete assessment that includes an E & P screening for CVD risk factors (smoking, hypertension, diabetes, dyslipidemia, obesity), and an echocardiogram prior to initiation of potentially cardiotoxic therapies.

Evidence and consensus-based, beneficial outcome harms, Evidence quality: High, Strength of recommendation: Strong

Clinical Questions

Which preventive strategies are effective in minimizing risk during the administration of potentially cardiotoxic therapy?

Recommendation 3.1

Clinicians should screen for and actively manage modifiable CVD risk factors (smoking, hypertension, diabetes, dyslipidemia, obesity) in all patients receiving potentially cardiotoxic treatments.

Evidence-based, beneficial outcome harms, Evidence quality: Insufficient, Strength of recommendation: Moderate

Recommendation 3.2

Clinicians may incorporate a number of strategies, including use of cardioprotective dosing, or continuous infusion, or temporal formation of doxorubicin for prevention of cardiotoxicity in patients planning to receive high dose (e.g., >250 mg/m² doxorubicin, >600 mg/m² epirubicin) anthracyclines.

Evidence-based, beneficial outcome harms, Evidence quality: Intermediate, Strength of recommendation: Moderate

Clinical Questions

What are the preferred surveillance/monitoring approaches during treatment in patients at risk for cardiac dysfunction?

Recommendation 4.1

Surveillance should be performed during treatment in asymptomatic patients considered to be at increased risk of developing cardiac dysfunction. In these individuals, echocardiography is recommended at 6-month intervals until a stable stage of disease is reached. Frequency of surveillance should be determined by healthcare providers based on clinical judgment and patient circumstances.

Evidence-based, beneficial outcome harms, Evidence quality: Intermediate, Strength of recommendation: Moderate

No recommendation can be made regarding continued/continuation of cancer therapy in individuals with evidence of cardiac dysfunction. This decision, made by the oncologist, should be informed by close collaboration with a cardiologist, fully evaluating the clinical circumstances, and considering the risk/benefit of continuation of therapy responsible for cardiac dysfunction.

Evidence-based, beneficial outcome harms, Evidence quality: Intermediate, Strength of recommendation: Moderate

What are the preferred surveillance/monitoring approaches after treatment in patients at risk for cardiac dysfunction?

Recommendation 5:

An echocardiogram may be performed between 6 to 12 months after completion of cancer-directed therapy in asymptomatic patients considered at risk of cardiac dysfunction.

Evidence-based, beneficial outcome harms, Evidence quality: Intermediate, Strength of recommendation: Moderate

Cardio MRI or MUGA may be offered for surveillance in asymptomatic individuals if an echocardiogram is not available or technically feasible (e.g. poor image quality), with preference given to cardiac MRI.

Evidence-based, beneficial outcome harms, Evidence quality: Intermediate, Strength of recommendation: Moderate

Knowledge Gaps

- Risk of new-onset Stage B disease in patients with normal baseline/12-month echocardiogram
- Optimal pharmacological intervention and its duration
- Cost effectiveness of different screening frequency/strategies
- Predictive value (PPP/NPV) of echocardiography by risk category

University of Texas MD Anderson Cancer Center
Anecita Fadol, PhD, FNP-BC, FAANP
Assistant Professor • Department of Nursing & Cardiology
1400 Holcombe Blvd, Unit 456
Houston, Texas 77030

American Society of Clinical Oncology: Clinical Practice Guidelines

Prevention and Monitoring of Cardiac Dysfunction in Adult Cancer Survivors: The ASCO Guidelines
Anecita Fadol, PhD, FNP-BC, FAANP

E-mail: afadol@mdanderson.org
Phone: 713-792-4015
Web: www.mdanderson.org