

Project ECHO Session Three

Medical Issues in Survivorship

March 14, 2024

Recording: [Project ECHO Session Three 3.14.24](#)

SURVIVORSHIP PROJECT ECHO

(Extension for Community Healthcare Outcomes)



Collaborators:

NYSDOH/NYSCCCP

SUNY Upstate (The Upstate Foundation, Inc.)

NYS Survivorship Action Team

Subject matter team leads:

Maureen Killackey M.D.

Tessa Flores, M.D.

Christina Crabtree-Ide, PhD, MPH

Funding: Centers for Disease Control and Prevention

HOUSEKEEPING ITEMS

Please type your name (first and last), health center or organization, and your email address into the Chat Box.

Please mute your line and remain on camera.

If you have a question, please type it in the Chat Box. Questions will be answered after the speakers' presentations.

This ECHO session is being recorded and a link will be e-mailed to attendees and posted on the NYS Cancer Consortium Website (nyscancerconsortium.org)

Do NOT share any personal information about any patient.

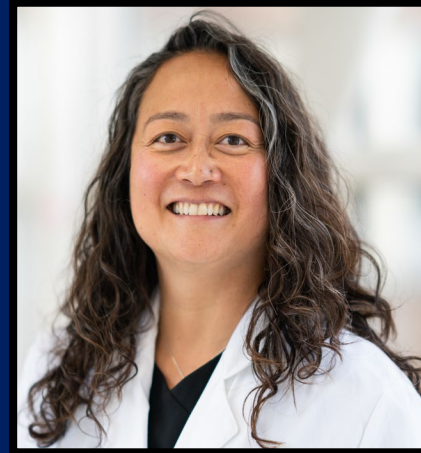
The Session PowerPoint and materials will be sent to attendees after each ECHO Session along with the CME survey.

INTRODUCTIONS



**Craig D Hametz, MD, FACC,
FASE, FASNC**

Clinical Cardiologist and
Medical Director for the New
York Presbyterian Medical
Group Hudson Valley



Tessa Faye Flores, M.D.

Medical Director of Cancer Screening
and Survivorship at Roswell Park
Comprehensive Cancer Center and a
board-certified Internist and
Pediatrician



**Facilitator: Maureen Killackey, MD,
FACS, FACOG**

Chair, NYS Cancer Advisory Council
and American College of Surgeons
Commission on Cancer Site Reviewer

Speakers have no disclosures or conflicts to report.

PARTICIPANT INTRODUCTIONS

Please type your name (first and last), health center or organization, and your email address into the Chat Box.

What is a Project ECHO?



- Collaborative, hub & spoke model of medical education and care management
- Goal is to form long-lasting partnerships between community-based provider teams and specialized providers to create bi-directional learning networks
- Increases workforce capacity to provide best-practice specialty care to patients wherever they may live; reduces health disparities

“Moving knowledge, not people”

Welcome

Survivorship ECHO Series

Session 3

Medical Issues in Survivorship

SPEAKERS

Craig D Hametz, MD, FACC, FASE, FASNC

Tessa Flores, MD

Facilitator: Maureen Killackey, MD, FACS, FACOG



Goals & Objectives ECHO Series



After participating in this ECHO Session, participants will be able to:

1. Describe common medical issues in survivorship
2. Learn about genetic predispositions and family history
3. Understand cardio-oncology and specific treatments

Scheduled sessions and subject matter discussants

Session 1: Introduction and Survivorship 101

January 11, 2024
12-1:00pm

Maureen Killackey, MD, FACS, FACOG
Tessa Flores, MD
Sylvia K. Wood PhD, DNP, ANP-BC, AOCNP
Facilitator: Christina Crabtree-Ide, PhD, MPH

Session 2: Survivorship Teams

February 8, 2024
12-1:00pm

Tessa Flores, MD
Gregory P. Rys, NP
Maura Abbott, PhD, AOCNP, CPNP-PC, RN
Facilitator: Maureen Killackey, M.D.

Session 3: Medical Issues in Survivorship

March 14, 2024
12-1:00pm

Craig D Hametz, MD, FACC, FASE, FASNC
Tessa Flores, MD
Facilitator: Maureen Killackey, M.D.

Session 4: Survivorship Lifestyle Behaviors

April 11, 2024
12-1:00pm

Mara Ginsberg, Esq.
Timothy Korytko, MD
Facilitator: Christina Crabtree-Ide, PhD, MPH

Session 5: Survivorship and Sexual Health

May 9, 2024
12-1:00pm

Kristin Sobieraj, PA
Lori Davis, DNP, FNP-C, ACNP-C, CSC, NCMP
Facilitator: Tessa Flores, M.D.

Session 6: Supportive Care in Survivorship

June 13, 2024
12-1:00pm

Anne Moyer, PhD
Robin Eggeling
Facilitator: Christina Crabtree-Ide, PhD, MPH

Late Medical Effects of Cancer Survivors





[NCCN Survivorship Panel Members](#)

[NCCN Survivorship Sub-Committee Members](#)

[Summary of the Guidelines Updates](#)

General Survivorship Principles

- [Definition of Survivorship \(SURV-1\)](#)
- [Standards for Survivorship Care \(SURV-2\)](#)
- [General Principles of the Survivorship Guidelines \(SURV-3\)](#)
- [Screening for Subsequent New Primary Cancers \(SURV-4\)](#)
- [Principles of Cancer Risk Assessment and Counseling \(SURV-5\)](#)
- [Assessment by Health Care Provider at Regular Intervals \(SURV-6\)](#)
- [Survivorship Assessment \(SURV-A\)](#)
- [Survivorship Resources for Health Care Professionals and Survivors \(SURV-B\)](#)
- [Principles of Screening for Treatment-Related Subsequent Primary Cancers \(SURV-C\)](#)

Preventive Health

- [Healthy Lifestyles \(HL-1\)](#)
 - ▶ [Physical Activity \(SPA-1\)](#)
 - ▶ [Nutrition and Weight Management \(SNWM-1\)](#)
 - ▶ [Supplement Use \(SSUP-1\)](#)
- [Immunizations and Infections \(SIMIN-1\)](#)

Late Effects/Long-Term Psychosocial and Physical Problems

- [Cardiovascular Disease Risk Assessment \(SCVD-1\)](#)
- [Anthracycline-Induced Cardiac Toxicity \(SCARDIO-1\)](#)
- [Anxiety, Depression, Trauma, and Distress \(SANXDE-1\)](#)
- [Cognitive Function \(SCF-1\)](#)
- [Fatigue \(SFAT-1\)](#)
- [Lymphedema \(SLYMPH-1\)](#)
- [Pain \(SPAIN-1\)](#)
- [Hormone-Related Symptoms \(SHRS-1\)](#)
- [Sexual Health \(SSH-1\)](#)
- [Fertility \(SF-1\)](#)
- [Sleep Disorders \(SSD-1\)](#)
- [Employment and Return to Work \(SWORK-1\)](#)

Clinical Trials: NCCN believes that the best management for any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

Find an NCCN Member Institution:
<https://www.nccn.org/home/member-institutions>.

NCCN Categories of Evidence and Consensus: All recommendations are category 2A unless otherwise indicated.

See [NCCN Categories of Evidence and Consensus](#).

Long term vs Late effects

- Long-term side effects: begin *during* treatment and continue after the end of treatment
- Late effects: symptoms that first appear *months or years after* active treatment ended

Surgical late and long term effects

- Lymphedema
- Functional limitations
- Pain
- Body Image
- Sexual dysfunction
- Incontinence
- Infertility
- Ostomy
- Change in bowel habits
- Vitamin deficiencies

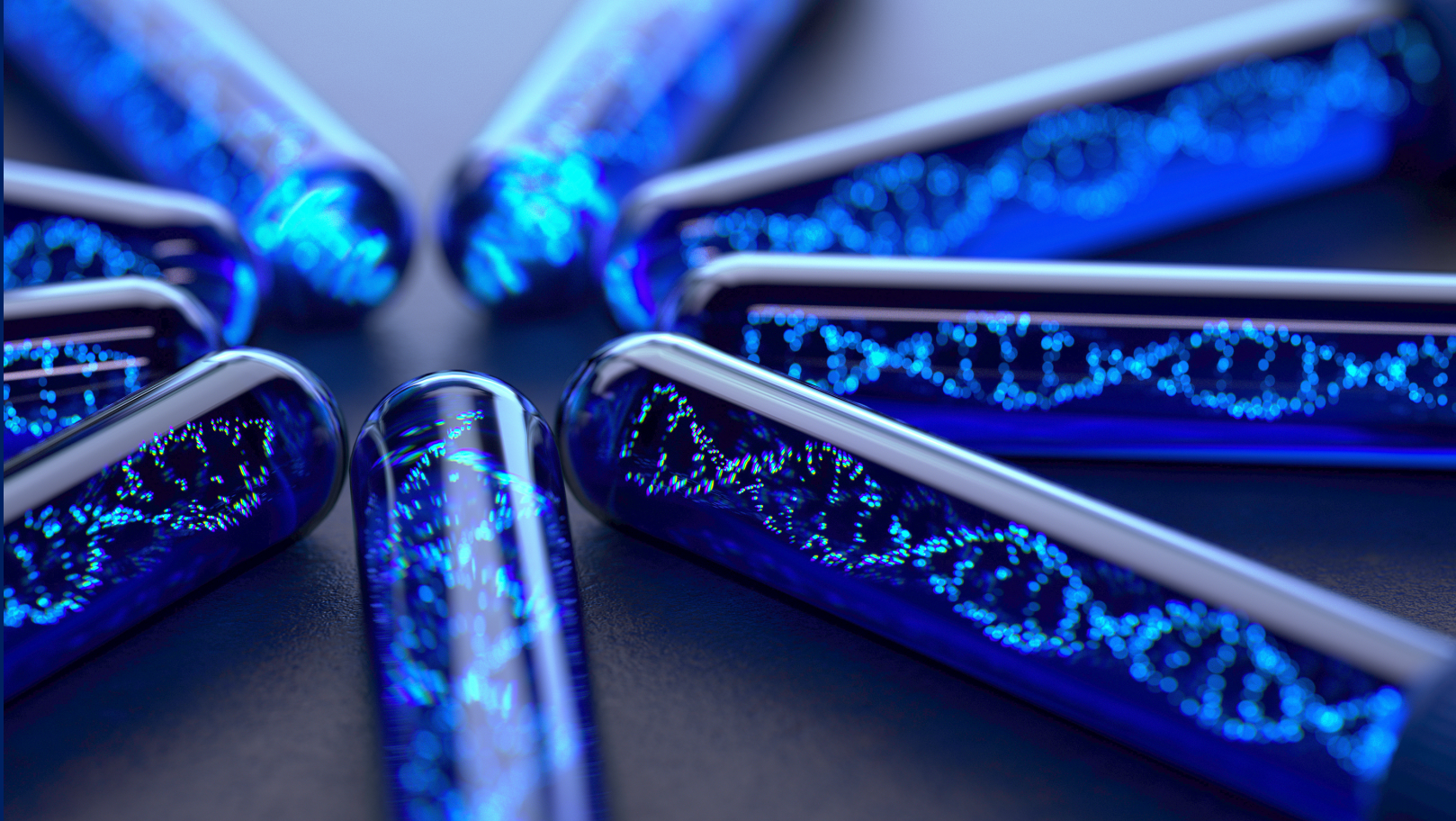
Chemotherapy late and long term effects

- Cardiac dysfunction
- Pulmonary fibrosis
- Hearing loss
- Premature menopause/infertility
- Neuropathy
- Bone loss
- Autoimmune disease
- Renal and hepatic dysfunction
- Increase risk of other cancer

Radiation late and long term effects

- Cavities/tooth decay
- Early Menopause
- Cardiovascular disease
- Hypothyroidism
- Lung disease
- Lymphedema
- Memory issues
- Bone loss
- Cataracts

Hereditary Cancer



Hereditary Cancer

Breast Cancer ↓

- ≤ 45 years old, triple negative cancer, multiple close family members with breast cancer

Gynecologic Cancer

- Ovarian cancer, fallopian tube, or primary peritoneal cancer, uterine cancer <50 years of age, multiple close family members with ovarian or uterine

Colorectal Cancer

- >10 colorectal polyps, colorectal cancer <50 years old, multiple close family members with colon, uterine, ovarian, or stomach cancer

Prostate Cancer

- ≤ 50 years old, metastatic prostate cancer

Renal Cancer

- ≤ 46 years old, multiple primary renal cancers, multiple close family members

Find a genetic counselor

- National Society of Genetic Counselors

<http://www.nsgc.org/page/find-a-genetic-counselor>



And The Beat Goes On...

*Preserving heart health from diagnosis
through survivorship*

Craig David Hametz, MD, FACC, FASE, FASNC

Cardiologist, NYP Medical Group Hudson Valley

New York State Survivorship Echo Series

New York State Cancer Consortium

New York State Survivorship Action Team

Thursday March 14th 2024

AMAZING
THINGS
ARE
HAPPENING
HERE

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And the Beat Goes On...

- The Path to Survivorship
- What is Cardio-Oncology?
- Preserving Cardiovascular Health Through Chemotherapy and Radiation therapy
- Primary and Secondary Prevention
- Advances in Diagnosis, Management & Treatment of Cardiovascular Disease



The Path To Survivorship

- Screening for Disease
- Detection and Diagnosis
- Surgery and Biopsies
- Waiting for Results
- Accepting the Diagnosis
- Discussing Treatment Options
- Pursuing Treatment
- Chemotherapy, and Radiation Therapy
- Managing Side Effects of Therapies
- Surgery and Biopsies
- Short Term Surveillance
- Waiting for Results
- Long Term Surveillance/Hormonal Therapies
- The Support of Family and Friends
- Maintaining Long Term Health





Case Presentation

- Patient A.S. is a 26 year old male
- History of B-Cell Non-Hodgkin's Lymphoma at age 6
- Treated with R-CHOP Chemotherapy and Radiation Therapy
- Pediatric Cardiology Evaluation in 2009
- Echocardiogram 7/2008 revealed preserved LV systolic function with concordant AV connections – subsequent echo suggest LVEF 44%.
- Started on “medical therapy”
- Adult cardiology evaluation January 2023
- Echocardiogram: Mild LV systolic dysfunction
 - Global Longitudinal Strain -16% which is mildly abnormal
 - Ejection fraction 40-44%
 - Evidence of stage II diastolic dysfunction



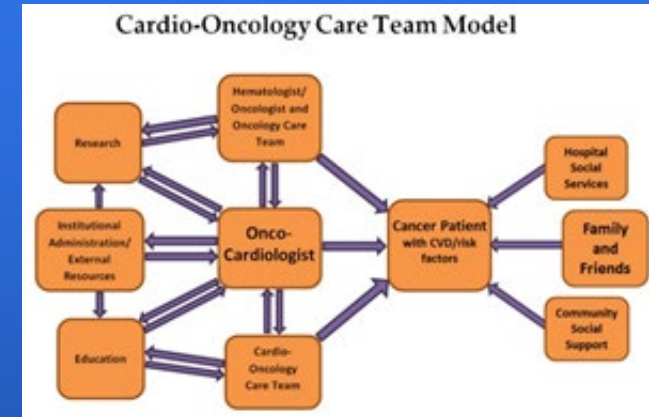
What is *Cardio-Oncology*

Cardio-Oncology is a sub-specialty that assists in the overall treatment of cancer patients, who have or are at risk for cardiovascular disease...

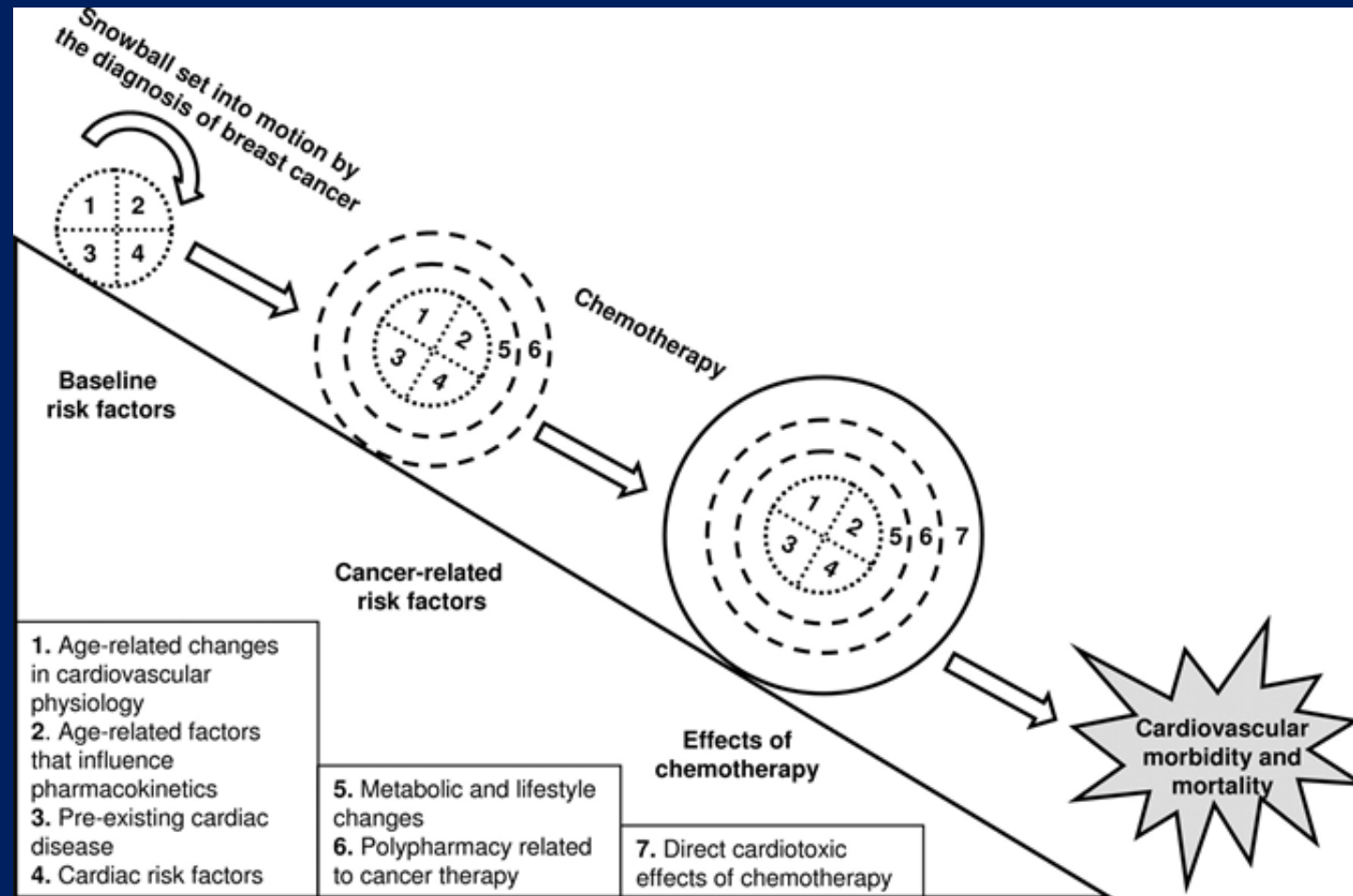
It is the intersection of cardiac conditions in patients who have been, will be or are currently being treated for cancer...

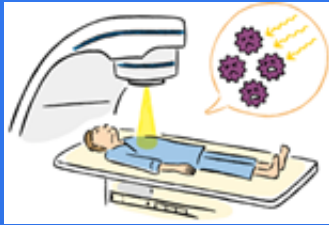
It is a collaboration between oncologists, cardiologists, research, Imaging, nursing, social services and the entire health care team...

To anticipate, to minimize, to prevent and ultimately to treat cardiovascular complications of cancer and cancer therapies...



Factors Contributing to CV Morbidity & Mortality

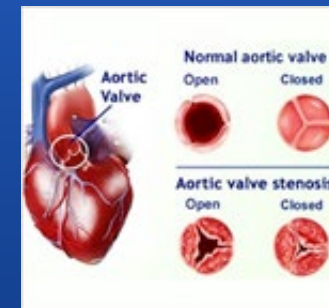
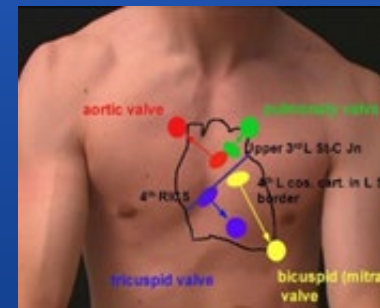
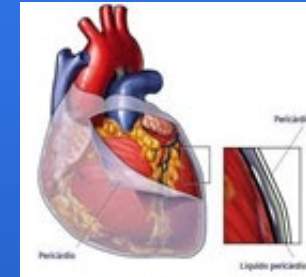




Cardiac Risk from Radiation Therapy

Spectrum of Radiation – Induced Heart Disease

- Pericardial Disease
 - Acute Pericarditis
 - Delayed pericarditis, with or without tamponade
 - Constrictive Pericarditis
- Coronary Artery Disease
 - Microvasculature (Small vessel disease)
 - Macrovasculature (Epicardial disease)
- Cardiomyopathy
- Left ventricular dysfunction
- Valvular Defects
- Conduction Abnormalities
- Pulmonary Venocclusive Disease





Cardiac Risk and Chemotherapy

- Congestive Heart Failure/LV Systolic Dysfunction
Anthracyclines, Ifosfamide, Imatinib
- Cardiovascular Ischemia (Coronary Artery Disease)
5FU, Xeloda, IFN alpha
- Hypotension (Low Blood Pressure)
L2, IFN alpha, Alemtuzumab
- Hypertension - VEGF Inhibitors
- Bradyarrhythmias (Slow Heart Rate)
5FU, Cisplatin, Thalidomide
- QTC prolongation/Torsades (Arrhythmia)
Arsenic Trioxide
- Lower Extremity Edema (Leg Swelling)
Imatinib, Thalidomide
- Pulmonary Embolus/Deep Vein Thrombosis
Bevacizumab, Thalidomide, Cisplatin
- Pericarditis and Pericardial Effusion - *Imatinib*





Tyrosine Kinase Inhibitors

- Tyrosine kinase-enzymes activate proteins by transferring phosphate group to the tyrosine residues of proteins in signal transduction cascade
- TKI's selective for inhibiting tyrosine phosphorylation
- Over 30 TKI's in clinical trials
- Targets include VEGFR, EGFR, PDGFR, BCR-abl

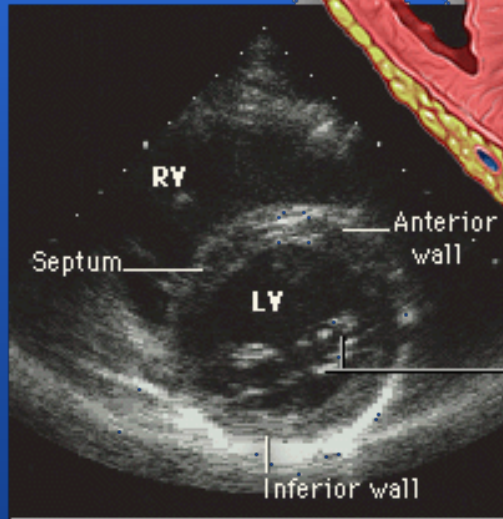
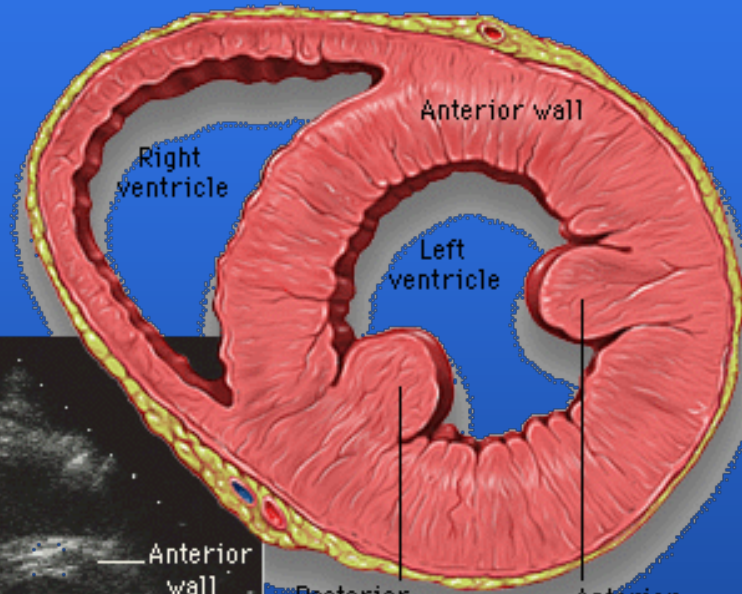
TKI Downstream Effects By Inhibiting VEGF Signaling Pathways

- Endothelial Dysfunction
- Nitrous Oxide Inhibition
- Oxidative Stress
- Decrease cell survival
- Decrease cell proliferation
- Decrease protein synthesis
- Cell Death

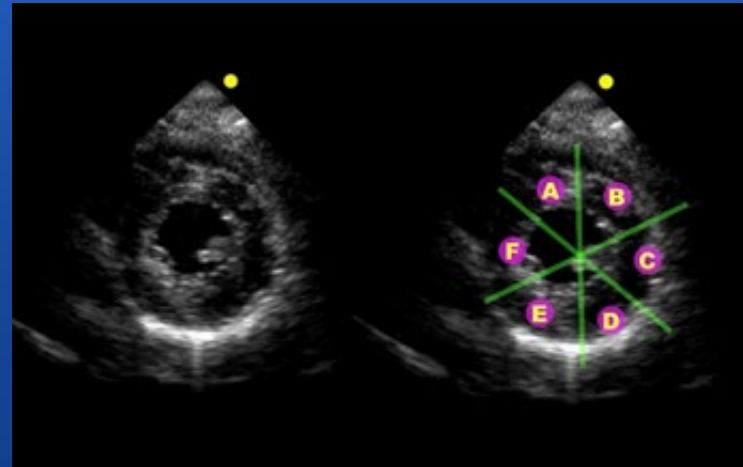
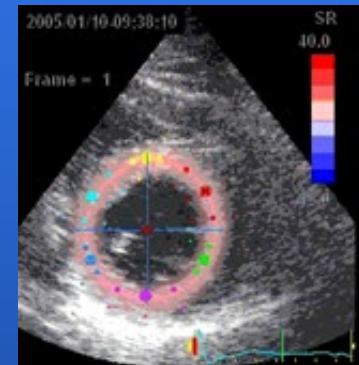
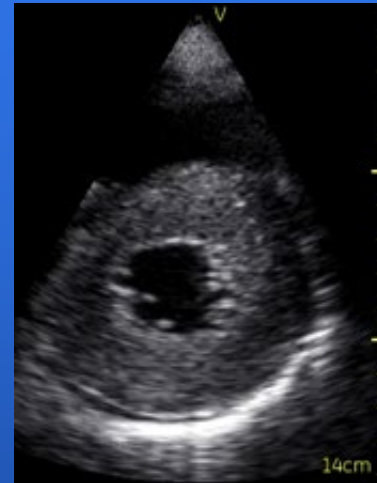


Preserving Cardiac Function

The Ejection Fraction



Posterior papillary muscle
Anterior papillary muscle
Chordae tendineae and papillary muscles



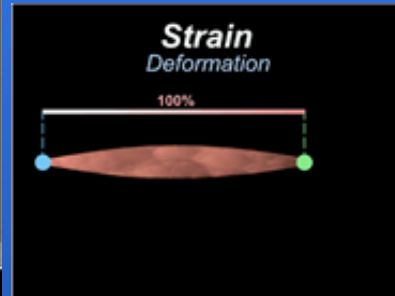
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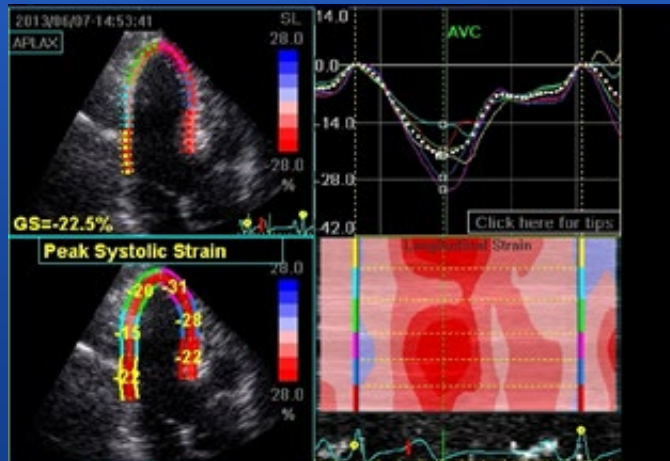
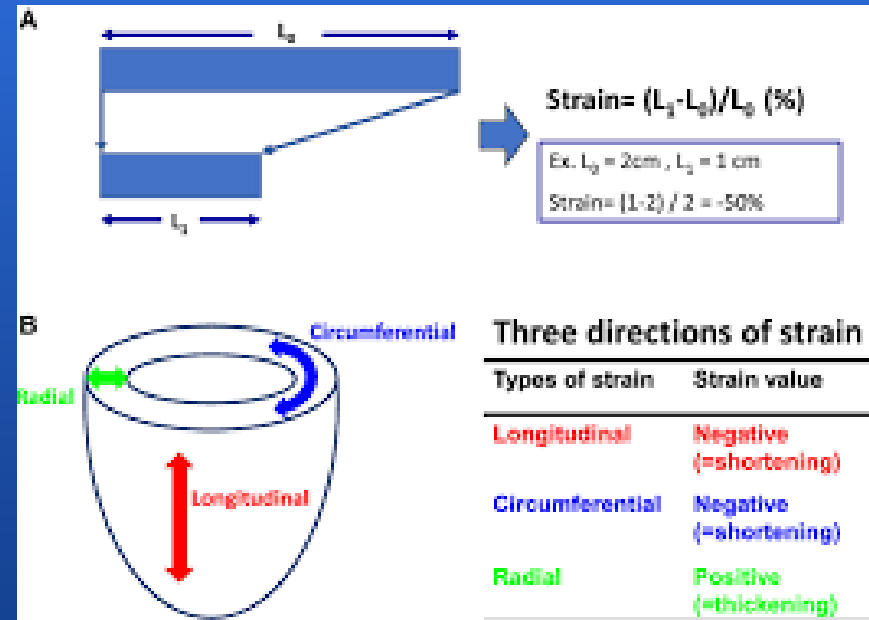


Preserving Cardiac Function

Global Longitudinal Strain



Normal Global Longitudinal Strain
More negative than (-17%) in adults



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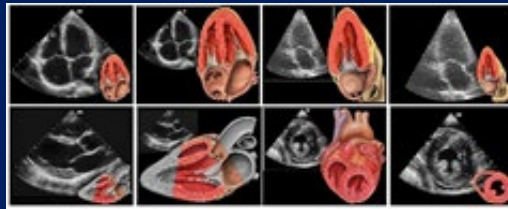
Evaluating Cardiovascular Function

Cardiac Biomarkers, Ejection Fraction, Strain and Radiographic Imaging

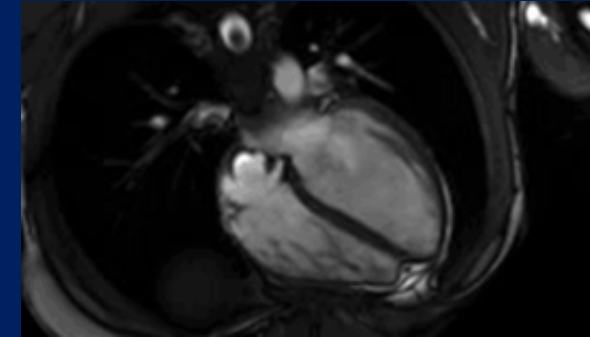
Nuclear Medicine
MUGA Scan



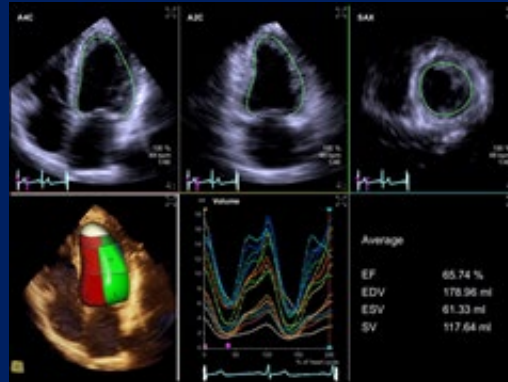
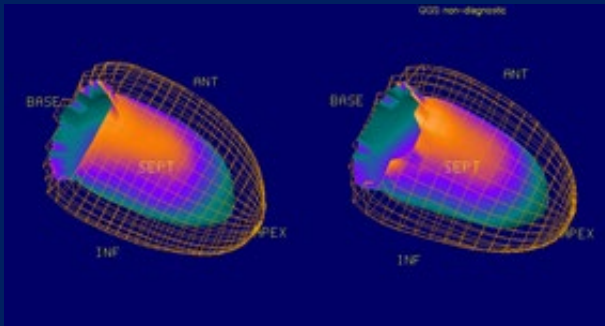
Echocardiography
(Cardiac Ultrasound)



Cardiac MRI



Nuclear Medicine
Cardiac SPECT



Coronary CTA



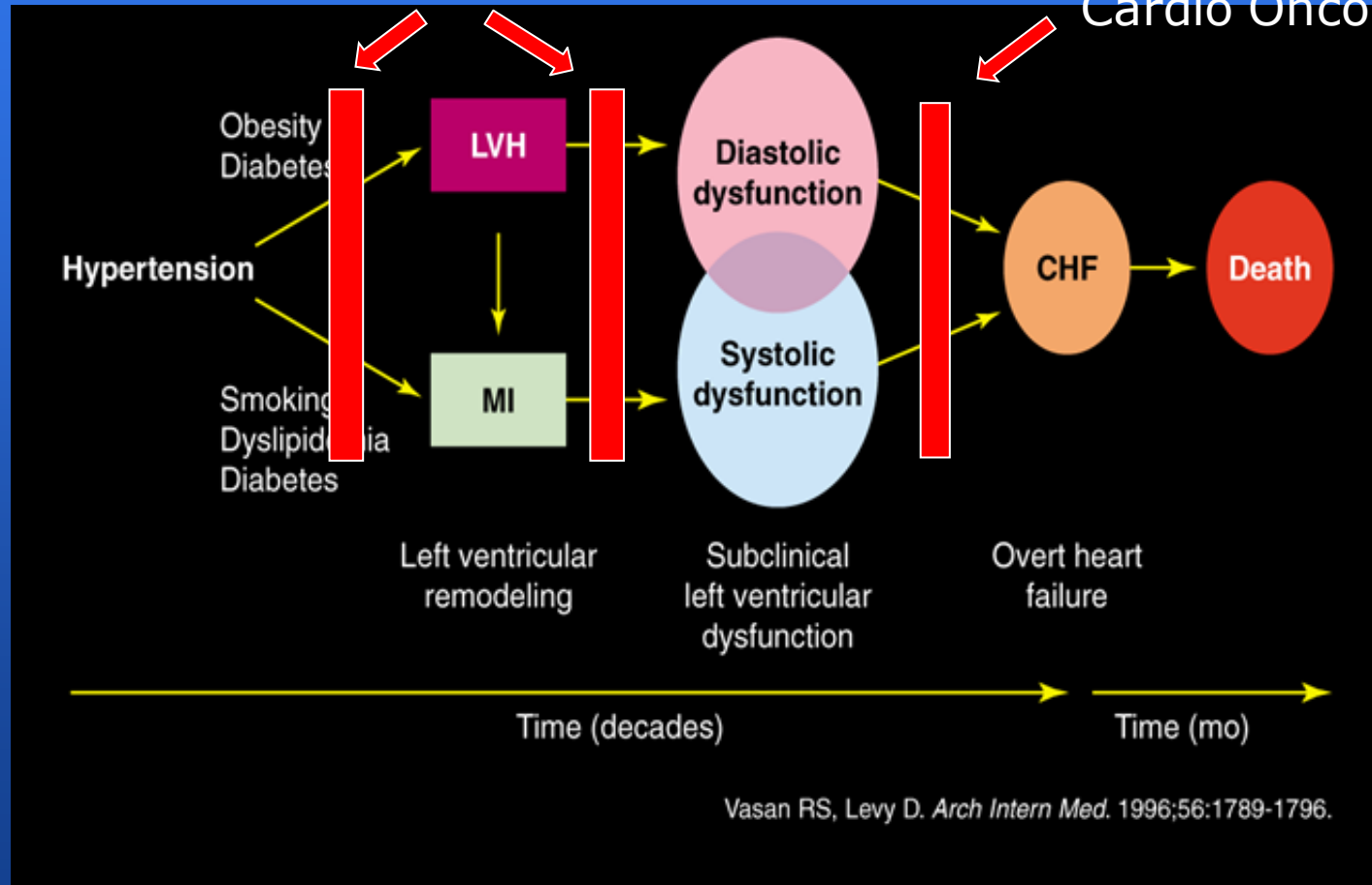
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Progression of hypertension to LVH and heart failure

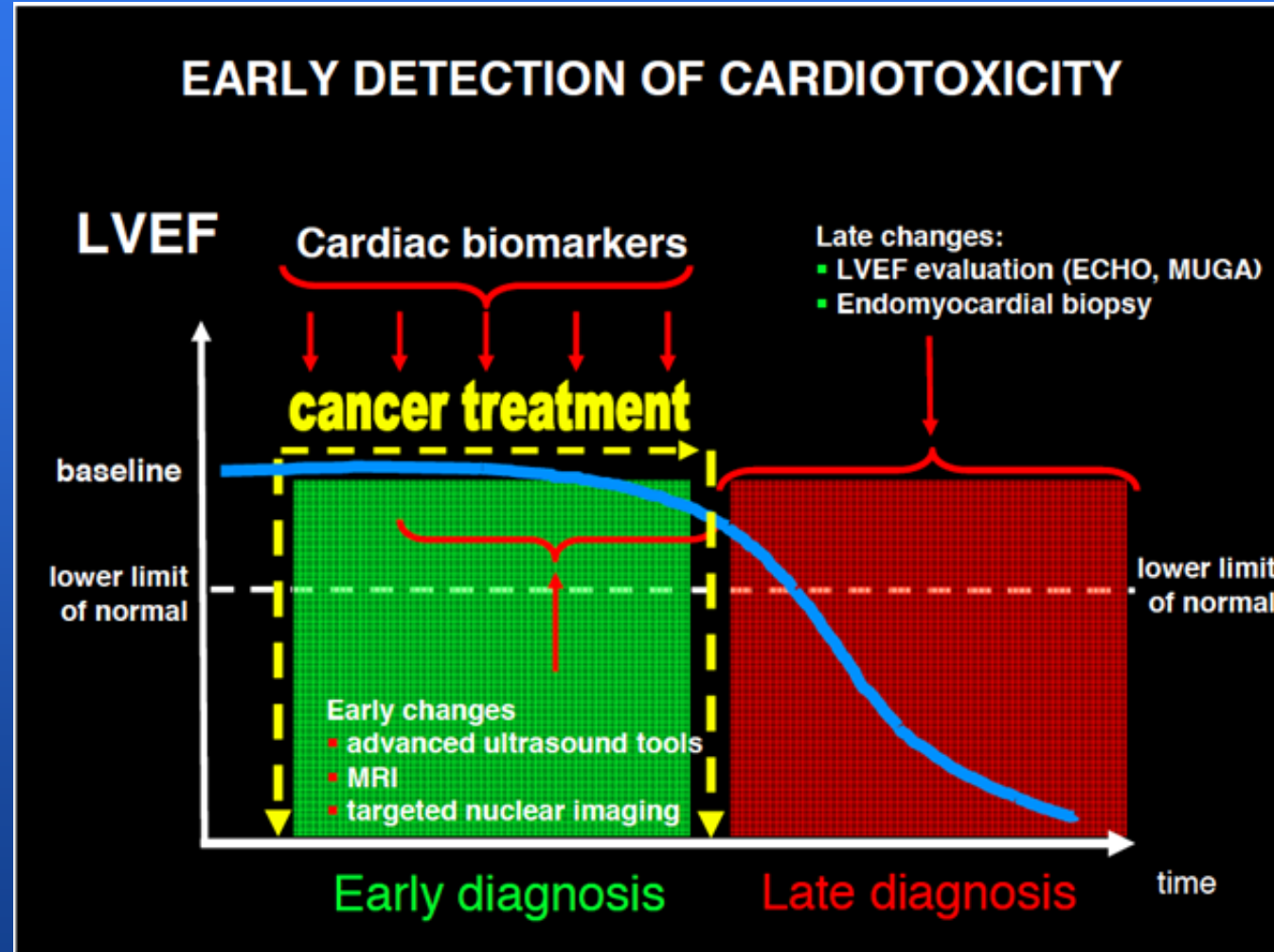
Cardio Oncology

Cardio Oncology





Detecting Early and Late Manifestations of Cardiotoxicity





RECOMMENDATIONS FOR MONITORING AND MANAGEMENT OF HYPERTENSION FROM NCI CARDIOVASCULAR TOXICITIES PANEL

- Pretreatment evaluation and screening, formal risk assessment for potential cardiovascular complications
- Identify and treat preexisting HTN before using these agents
- Active BP monitoring during treatment, especially in the first several weeks of initiating therapy
- Manage BP with goal of 130/80 for most patients and lower with specific preexisting cardiovascular risk factors such as diabetes or chronic kidney disease
- Biomarkers NT pro BNP, Cardiac Troponin, Serial ECG
- Myocardial Strain and Echocardiography Follow Up
 - Baseline LVEF, Following Echocardiogram and Strain Values
- Cardiac MRI



Cardiovascular Disease

Advances in Diagnosis, Management & Treatment Options

- Valvular Heart Disease
 - Minimally invasive procedures
- Coronary Artery Disease
 - Medical & Invasive Management Strategies, Minimally Invasive Bypass Surgery
- Arrhythmic Heart Disease
 - Atrial Fibrillation Ablation, Complex Arrhythmias, Implantable Monitors
- Structural Heart Disease
 - Prevention/Detection of Sudden Death
- Congestive Heart Failure
 - Left Ventricular Assist Devices, Implantable Defibrillators
- Peripheral Vascular Disease
- Catheter Based Valve Replacements
 - TAVR (Transcatheter Aortic Valve Replacement), Mitral Valve Clip



Case Presentation

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- Treated with R-CHOP Chemotherapy and Radiation Therapy
- Echocardiogram 7/2008 revealed preserved LV systolic function with concordant AV connections, Subsequent echocardiogram revealed LV systolic dysfunction (EF 44%).
- Started on “medical therapy”
- Echocardiogram: January 2023
 - Mild LV systolic dysfunction
 - Global Longitudinal Strain -16% which is mildly abnormal
 - Ejection fraction 40-44%
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Case Presentation

Management of A.S.

- A.S. 26 y.o. M, B-Cell Lymphoma s/p R-CHOP, RT at Age 6

- LV systolic Dysfunction with abnormal GLS at age 26
 - LVEF 40-44%; Global Longitudinal Strain -16%

- Management:
 - Maintained on carvedilol 3.125 mg BID & started Valsartan 80 mg QD

- Imaging and Further Work – Up:
 - Holter Monitor: Normal Holter, No ventricular ectopy
 - Serial Echocardiogram
 - Recommended every 3-5 years
 - Monitoring both LV function (Doxorubicin) & Valvular Heart Disease (Radiation Therapy)
 - Cardiac MRI
 - Pattern of Delayed Hyperenhancement and Evaluation of LV and RV systolic function

- Etiology of Cardiotoxicity
 - Doxorubicin therapy and Radiation Therapy



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Thank You

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