DIETITIAN PRACTICE AND SKILL

Cardiac Patients, Nutritional Intervention for

What Is Nutritional Intervention for Cardiac Patients?
Cardiac patients include those with any diseases of the heart or cardiovascular system. Nutritional intervention for cardiac patients involves screening for any nutritional risks which may compromise the patient’s care, as well as providing individualized medical nutrition therapy (MNT) to assist with the cardiac rehabilitation process.

• What: Cardiac, or cardiovascular disease (CVD) is the leading cause of death worldwide. Because the major risk factors for CVD are diet and lifestyle related, nutrition intervention is an essential part of the care of cardiac patients, and has been shown to reduce the risk of disease progression and premature morbidity and mortality
• How: Nutrition intervention for cardiac patients involves assessing a patient’s related medical history, labs, weight, diet history, family medical history, and relevant social history, making a nutrition diagnosis, and prescribing and administering appropriate nutrition education
• Where: Nutrition intervention is performed in all patient care settings, including inpatient, outpatient (e.g. RD’s office, clinic), group cardiac rehabilitation program, homecare settings, and occasionally adult daycare setting
• Who: Parts of the nutrition assessment (height, weight, blood pressure (BP), lab work) may be collected by nurse clinicians or other trained staff. An RD should conduct a dietary assessment and interpret all data, as well as provide MNT. The patient education process should encourage active participation in order to improve the chance of behavior change. It is appropriate and often desirable for the cardiac patient’s family to be present during the patient education

What Is the Desired Outcome of Nutritional Intervention for Cardiac Patients?
› The desired outcome of nutritional intervention for cardiac patients is to
• identify patients who are at nutritional risk for complications due to any dietary factors which may increase postoperative complication and/or exacerbate the CVD process
• educate and empower the patient to make changes related to their diet and lifestyle, to reduce the risk of additional cardiac episodes
• improve clinical measures such as fasting lipid profile, BP, weight, fluid status, and fasting blood glucose if appropriate

Why Is Nutritional Intervention for Cardiac Patients Important?
› Nutritional intervention can help to promote cardiovascular health, by improving nutritional status and reducing the modifiable risk factors which contribute to the progression of CVD

Facts and Figures
› Globally, CVD accounts for 17.3 million deaths each year, and approximately 85.6 million Americans are living with CVD or complications from stroke. According to the American Heart Association/American Stroke Association’s 2015 Statistics, the survival
rate for those who have an out-of-hospital sudden cardiac arrest and wait for medical personnel is 10.6%. Each year 209,000 people have a cardiac arrest while in the hospital.

- In a study on prognostic impact of nutritional status in cardiac patients who are asymptomatic, research determined that in stage B patients (those who have been diagnosed with structural and/or functional heart disease, but without symptoms), poor nutritional status is associated with increased risk of mortality overall, and of heart failure hospitalization for older patients (Nochioka et al., 2013).

- Compromised nutritional status in hospitalized patients increases the risk of postoperative infections and complications, as well as mortality. Screening newly admitted patients with tools such as the Malnutrition Universal Screening Tool (MUST) or Short Nutritional Assessment Questionnaire (SNAQ) has been shown to identify patients who are at increased risk for postoperative complications. In a study on 396 patients undergoing cardiac surgery, the Academy of Nutrition and Dietetics (AND) determined that screening by MUST is more accurate than SNAQ, and the accuracy of MUST is further enhanced when a patient’s age and sex are integrated into the screening process (Lomivorotov et al., 2013; van Venrooij et al., 2011).

- Cardiac patients with long-term consumption of antioxidant-rich foods have been shown to have reduced incidence of postoperative atrial fibrillation after cardiac surgery. In addition, higher intake of lycopene from canned tomatoes, regardless of their sodium content, is associated with improved cardiac event-free survival in patients (Costanzo et al., 2015; Biddle et al., 2013).

- Supplementing cardiac surgery patients with ω-3 fatty acids prior to and immediately following surgery may decrease postsurgical complications. A small study which supplemented patients with ω-3, arginine and RNA enriched supplement IMPACT showed that subjects who received the supplement had less inflammatory and thrombotic responses after surgery (Iwase et al., 2014).

- Studies that examined factors which affected patient’s compliance and decision-making about managing CVD risk found that those which led to more positive management and changes include: receiving appropriate information and social support from clinical staff; a belief that the patient (versus a higher being or genetics) has control over his health; the overall appeal of the changes; and the amount of time, effort or competing priorities a patient has (Onyekachi-Chigbu et al., 2014, King-Shier et al., 2013).

What You Need to Know Before Providing Nutritional Intervention for Cardiac Patients

- The Cardiac Therapeutic Lifestyle Changes (TLC) plan is recommended to improve dyslipidemia and reduce risk for CVD through low fat diet, increased exercise and weight loss.

- The low sodium (1,500 mg to 2,400 mg per day) Dietary Approaches to Stop Hypertension (DASH) diet has been shown to reduce BP in patients with HTN. Further, adhering to a sodium restriction of <3,000 mg per day is associated with an improved symptom burden and outcome for heart failure (HF) patients.

- Educating cardiac patients about the potential health benefits and rationale for dietary changes such as low sodium, increasing fruit and vegetable intake, and adding functional foods (e.g. oat fiber, plant-sterols, nuts) can lead to beneficial dietary changes that will reduce risk.

- Most patients who attend a cardiac prevention or rehabilitation program that includes education by an RD are successful at making lifestyle changes that can reduce their risk of advancing CVD. Because patients are often at different stages of change by the end of the program, there may be a need for further support after the final stage of the program.

- The steps that should be performed prior to performing nutrition intervention for cardiac patients include the following:
  - Review the facility specific protocol for performing nutritional intervention, if any.
  - Review the treating clinician’s orders for nutritional intervention.
  - For newly admitted patients, administer or review results of malnutrition screening (MUST) per facility protocols.
  - Review the patient’s medical chart and assess the following:
    - any pertinent past medical history
    - current diagnoses
    - significant family history
    - social history
    - current lab work, vital signs, and anthropometric measurements
    - prescribed medications or supplements
  - Assemble any necessary forms or tools for assessment and education (e.g. food frequency form, food models, food labels).
How to Perform Nutritional Intervention for Cardiac Patients

- Identify the patient according to facility protocol
- Introduce yourself to the patient and family members if present and explain your clinical role. Assess the coping ability of the patient and level of literacy skills or any language barriers and make arrangements to meet these needs if present
  - Use professionally certified medical interpreters, either in person or via phone, when language barriers exist
  - Use literacy appropriate educational materials
- Collect a thorough diet history by asking the patient for a 24-hour diet recall and food frequency and assess the following
  - Fat intake including saturated, trans, monounsaturated and ω-3 fats, sodium, refined carbohydrate intake
  - Total energy intake
  - Adequacy of fruit, vegetable and low fat dairy intake as compared to DASH diet guidelines
  - Total and soluble fiber intake
  - Assess alcohol intake and frequency
- Assess the patient’s understanding of nutrition intervention for CVD, compliance with any prior nutrition education or intervention and willingness or stage of change
- Depending on the complexity of the educational needs, and the patient’s level of understanding or motivation, nutrition education may best be provided in several sessions. The following should be covered, and teaching materials and methods used should take into account the patient’s cultural preferences, literacy, access to healthy food and willingness to change
  - Sources of saturated and trans fat to minimize and appropriate substitutes
  - Rationale for sodium reduction, goals for sodium intake, and sources of sodium, especially canned, packaged and processed foods and appropriate substitutes
  - Sources of refined carbohydrates to limit, and appropriate substitutes. Carbohydrate goals if appropriate for a patient with diabetes
  - Rationale for choosing foods high in monounsaturated and ω-3 fats and ways to include them in the diet
  - Goals for DASH diet, with solutions for increasing fruit and vegetable consumption
  - Rationale for including functional foods (e.g. oat products, fortified margarines or other sources of plant sterols) and appropriate food sources
  - Benefits of reducing processed foods and following a meal plan focused on whole foods, and steps to take to achieve this
  - Any other nutrition or diet related goals as indicated by cardiac risk factors or as ordered by patient’s medical clinician
- Provide appropriate written information for the patient and family to review and take home
- If appropriate, request clinician referral to other support programs, weight loss or exercise programs, behavioral health clinicians or other services as needed
- Encourage ongoing discussion of the cardiac disease process, individualized prognosis, and appropriate ways to reduce risk
- Include a plan to follow up with patient if necessary to monitor, continue nutrition education, and assess progress
- Stress the importance of attending scheduled medical and nutrition appointments to monitor progress and prevent progression of disease
  - Monitor BP, fasting lipid profile, glucose, and other tests as indicated as per facility protocol
  - Monitor weight and BMI
  - Monitor dietary changes and address any challenges or barriers to change
- Update the patient’s plan of care as appropriate and document the following in the patient’s medical record
  - Date and time of MNT
  - Listing of nutrition related tests and measures (e.g., BP, fasting lipid profile, weight)
  - Nutrition history and food frequency or 24-hour recall
  - Nutrition assessment and diagnosis
  - Recommended nutrition intervention and description of any education provided
  - Plan for monitoring and follow-up

Any details regarding communication barriers, or concerns about the patient’s ability to implement the nutrition plan or other relevant issues

Other Tests or Assessments That May Be Necessary Before or After Nutritional Intervention for Cardiac Patients

- Lab testing, vital signs and anthropometric measurements are used in the assessment and monitoring of progress
• Elevated fasting lipid profile, c-reactive protein level, BP, fasting blood glucose (in a patient with diabetes) increase risk of atherosclerosis and CVD
• Elevated liver enzymes may be related to metabolic syndrome or nonalcoholic fatty liver disease, both of which increase risk of CVD. Liver enzymes may also be elevated from certain lipid lowering medications, or for non-cardiac diagnoses
• Cardiac enzymes are elevated with myocardial infarction
• Overweight (body mass index BMI) 25–29.9 or obesity BMI >30 increases the risk of hypertension and other CVD

 Patients who take anticoagulant medication must have an international normalized ratio (INR) measured. Vitamin K containing foods can interact with some anticoagulant medications and affect INR

A MUST screen helps to identify any hospitalized patients who are at risk for malnutrition

The presence of edema indicates fluid retention and possible need for sodium and fluid restriction in HF patients

Medications and supplements should be reviewed for any potential drug/nutrient interactions

A thorough diet history and history of compliance with previous therapies should be reviewed and assessed

Cardiac patients who have suffered a stroke should be evaluated for chewing and swallowing difficulty, as well as other feeding issues

What to Expect After Nutritional Intervention for Cardiac Patients

After nutritional intervention, the hospitalized cardiac patient will have any acute nutritional risks reduced to promote successful care. Patients who are discharged or receive MNT in an outpatient or community setting will have received an individualized care plan to reduce their modifiable risk factors and promote improved cardiac health

Red Flags

Foods that are high in vitamin K can interact with the effects of certain anticoagulant medications. Patients at risk should be counseled to maintain a consistent intake of these foods

Cardiac patients who take certain diuretic medications should be monitored for hypokalemia. Potassium needs can be met through a diet which is high in potassium-rich fruits and vegetables, which is generally more palatable and preferred by patients as compared to potassium supplements

Patients who take non-potassium sparing diuretics, or angiotensin-converting enzyme inhibitors (ACE Inhibitors) may be at risk for hyperkalemia and may need to be counseled to reduce intake of potassium-rich foods

Moderate to heavy alcohol consumption has been linked to atrial fibrillation in patients with arrhythmias

Sudden weight gain in HF patients may be secondary to fluid overload

What Do I Need to Tell the Patient/Patient’s Family?

Encourage support for lifestyle changes, especially with diet and exercise

• Adherence to a heart healthy diet which is rich in fruits, vegetable and plant foods and low in saturated fats is an important part of managing cardiac disease

• Choosing foods that are low in sodium and limiting alcohol intake are important to reduce BP and maintain appropriate fluid balance

Emphasize the importance of weight loss if appropriate, or maintenance of healthy weight through diet and exercise, to reduce CVD risk and maintain health

Emphasize the importance of medication compliance and regular follow-up for medical and nutrition appointments, and other intervention as appropriate

Provide written instructions with regard to specific nutritional goals and follow-up appointments

Provide other information and resources about nutrition and cardiovascular disease from trusted sources such as the American Heart Association site at http://www.heart.org/HEARTORG/ and MedlinePlus at http://www.nlm.nih.gov/medlineplus/ency/article/002436.htm

References


