components of cardiac rehabilitation

Core components of cardiac rehabilitation/secondary prevention programs:

- Blood pressure management,
- lipid management,
- diabetes management
- tobacco cessation,
- psychosocial management
- physical activity counseling
- exercise training

Patient assessment

❑Evaluation

Medical history:

- Review current and prior cardiovascular medical and surgical diagnoses and procedures,comorbidities (including peripheral arterial disease, cerebral vascular disease, pulmonary disease, kidney disease, diabetes mellitus, musculoskeletal and neuromuscular disorders, depression);
- symptoms of cardiovascular disease; medications; date of most recent influenza vaccination; cardiovascular risk profile; and educational barriers.

Patient assessment

- **Physical examination:**

  Assess cardiopulmonary systems (including pulse rate and regularity, blood pressure, auscultation of heart and lungs, palpation and inspection of lower extremities for edema and presence of arterial pulses); post-cardiovascular procedure wound sites; orthopedic and neuromuscular status; and cognitive function

- **Testing:**

  Obtain resting 12-lead ECG; assess patient's perceived health-related quality of life or health status

Patient assessment

❑ Interventions

- patient treatment plan(intervention strategies for risk reduction.)

- discharge/follow-up plan
- ensure that the patient is taking appropriate doses of aspirin, clopidogrel, -blockers, lipid-lowering agents, and ACE inhibitors or angiotensin receptor blockers as per the ACC/AHA, and that the patient has had an annual influenza vaccination.

Nutritional counseling

❑Evaluation

•Obtain estimates of total daily caloric intake and dietary content of saturated fat, trans fat, cholesterol, sodium, and nutrients.

•Assess eating habits, including fruit and vegetable, whole grain, and fish consumption; number of meals and snacks; frequency of dining out; and alcohol consumption.

Nutritional counseling

❑Interventions

➢Prescribe specific dietary modifications aiming to at least attain the saturated fat and cholesterol content limits of the Therapeutic Lifestyle Change diet.

Nutritional counseling

- Expected outcomes

  - Patient adheres to ***prescribed diet***.

  - Patient understands basic principles of dietary content, such as calories, fat, cholesterol, and nutrients.

Weight management

❑Evaluation

Measure weight, height, and waist circumference. Calculate body mass index (BMI).\

❑Interventions

- In patients with BMI >25 kg/m2 and/or waist >40 inches in men (102 cm) and >35 inches (88 cm) in women

Blood pressure management

❑Evaluation

- Measure seated resting blood pressure on 2 visits.
- Measure blood pressure in both arms at program entry.
- Assess current treatment and compliance.
- Assess use of nonprescription drugs that may adversely affect blood pressure.

Blood pressure management

❑Interventions

✓If blood pressure is 120-139 /80-89 mmHg :
Provide lifestyle modifications

✓ Provide drug therapy for patients with chronic kidney disease, heart failure, or diabetes if blood pressure is 130 / 80 mmHg after lifestyle modification.
If blood pressure is 140 mmHg systolic or 90 mmHg diastolic:
Provide lifestyle modification and drug therapy.

❑هدف درمانی

- هدف درمانی فشار خون کمتراز ۱۴ روی ۹ دربیماران است
- فشارخون کمتر از ۱۲روی ۸۰ در بیماران مزمن کلیوی/نارسایی قلبی و دیابت

Lipid management

❑Evaluation

✓Obtain fasting measures of total cholesterol, high-density lipoprotein, low-density lipoprotein, and triglycerides.

✓Repeat lipid profiles at 4-6 weeks after hospitalization and at 2 months after initiation or change in lipid-lowering medications.

✓Assess creatine kinase levels and liver function in patients taking lipid-lowering medications as recommended by NCEP.

Lipid management

❑Interventions

- •nutritional counseling
- •weight management
- • exercise
- •smoking cessation
- •alcohol moderation
- • drug therapy

•LDL >**70** mg/dL: شروع درمان کاهنده چربی
• LDL >**100** mg/dL افزایش دوز یا اضافه کردن دارو:

Diabetes management

❑Evaluation

Before starting exercise:

➢ Obtain latest fasting plasma glucose (FPG) and glycosylated hemoglobin (HbA1c)

➢ Consider stratifying patient to high-risk category because of the greater likelihood of exercise-induced complications.

Diabetes management

❑Interventions

- ➢Avoid exercise at peak insulin times.
- ➢ Advise that insulin be injected in abdomen, not muscle to be exercised.
- ➢ Test blood sugar levels pre- and postexercise at each session:
  - if blood sugar value is <**100** mg/dL, delay exercise and provide patient 15 g of carbohydrate; retest in 15 minutes; proceed if blood sugar value is >100 mg/dL
  - if blood sugar value is >**300** mg/dL, patient may exercise if he or she feels well, is adequately hydrated, and blood and/or urine ketones are negative.
- ➢ Encourage adequate hydration to avoid effects of fluid shifts on blood sugar levels.
- ➢ Caution patient that blood sugar may continue to drop for 24-48 hours after exercise.
- ➢test blood sugar levels prior to exercise for first 6-10 sessions to assess glycemic control

Diabetes management

❑Expected outcomes

- ❖ Attain FPG levels of 90-130 mg/dL and HbA1c <7
- ❖ Minimize complications and reduce episodes of hypoglycemia or hyperglycemia at rest and/or with exercise.
- ❖ Maintain blood pressure at <130 /80 mmHg.

Tobacco cessation

❑Evaluation

•Document status as never smoked, former smoker, current smoker

•Specify both amount of smoking (cigarettes per day) and duration of smoking (number of years)

•Quantify use and type of other tobacco products. Question exposure to second-hand smoke at home and at work.

Tobacco cessation

❑Intervention

- Pharmacological support : nicotine replacement therapy, bupropion hydrochlorid
- Supplemental strategies if desired (eg, acupuncture)
- If patient has recently quit, emphasize relapse prevention skills.
- Urge avoidance of exposure to second-hand smoke at work and home.

Psychosocial management

✓ Patient demonstrates responsibility for health-related behavior change, relaxation, and other stress management skills; ability to obtain effective social support and reduction or elimination of alcohol, tobacco, caffeine, or other nonprescription psychoactive drugs.

Exercise training

❑Evaluation

- Symptom-limited exercise testing prior to participation in an exercise-based cardiac rehabilitation program is strongly recommended.

- Test parameters should include assessment of heart rate and rhythm, signs, symptoms, ST-segment changes, Hemodynamics, perceived exertion, and exercise capacity.

نسخه ورزشی

- **For aerobic exercise:**

  - **F** ☛3-5 days/wk
  - **I** ☛ 50-80 percent of exercise capacity
  - **D** ☛ 20-60 minutes
  - **M** ☛ walking, treadmill, cycling, rowing, stair climbing, arm/leg ergometry

For resistance exercise:

- **F**=2-3 days/wk
- **I**=10-15 repetitions per set to moderate fatigue
- **D**=1-3 sets of 8-10 different upper and lower body exercises
- **M**=calisthenics, elastic bands, cuff/hand weights, dumbbells, free weights, wall pulleys, or weight machines

- warm-up, cool-down, and flexibility exercises in each exercise session.