HEART RATE VARIABILITY AND ARRHYTHMIAS SUMMARY

Heart rhythm should be regular with a rate of between 60-99 beats/minute at rest
- Under normal conditions a healthy heart displays slight beat-to-beat variability
  - Thus, healthy heart rhythm is not strictly regular but varies slightly as a result of numerous factors
    ➢ Especially balance between sympathetic and parasympathetic arms of autonomic nervous system
Experts people are most healthy when cardiac, respiratory and central nervous system activities align and function in synchrony
- Reflected as balanced autonomic tone, high HRV
- HRV taken as indicator of baroreflex activity and psychophysiological resilience
  - High HRV signifies healthy systemic adaptability
  - Low HRV suggests susceptibility to negative consequences of stress and disease
    ➢ Low HRV correlated with:
      - Increased arrhythmias, sudden cardiac death, all-cause mortality
      - Range of non-cardiac disorders including DM, fibromyalgia, neurologic and psychiatric disorders
Abnormalities of heart rhythm occur due to:
- Underlying coronary artery disease
- Reentry phenomena
- Cardiotoxin exposure
- Ectopic foci
- Medication side effects
- Abnormal automaticity
Apart from lowered HRV, factors that may promote cardiac arrhythmias include:
- Stimulant or alcohol use
- Cigarette smoke
- Sympathetic nervous system overdrive (psychosocial stress)
- NSAID use (increased risk of atrial fibrillation)

Conventional medical treatment of cardiac arrhythmias fraught with complications
- Prevention is key
- Dietary and lifestyle factors may help lower risk
- Select complementary therapies may also help lower risk (scant supportive evidence)
WHOLE HEALTH: CHANGE THE CONVERSATION
Clinical Tool: Heart Rate Variability and Arrhythmias Summary

DIET

- Mediterranean pattern of eating / DASH diet
  - Safe and adequate amounts of magnesium, potassium, and other nutrients that help support normal sinus rhythm
  - Alcohol - role in the Mediterranean diet
    - Moderation important for many reasons
      - Association of binge drinking and subsequent development of arrhythmias (atrial fibrillation)
- Omega-3 fatty acids
  - May help protect against life-threatening arrhythmias following acute coronary events
    - Otherwise little evidence for overall antiarrhythmic effect, especially against ventricular ectopy
      - Some evidence of protective effect against atrial fibrillation following cardiac surgery

EXERCISE

- Regular physical activity:
  - Enhances vagal tone
  - Reduces release and sensitivity to catecholamines
  - Improves HRV

CAM THERAPIES

- Acupuncture
  - Small number of studies
  - Considered useful adjunct management of atrial fibrillation
- Herbs
  - Caution with stimulant herbs
  - Concerns with other botanicals: overlapping mechanisms of action with prescription aids, limited safety data
  - Other herbs: some promise for khella (*Ammi visnaga*, from which amiodarone and nifedipine were developed), rhodiola (*Rhodiola rosea*), motherwort (*Leonurus cardiaca* - negative chronotropic effects), and hawthorn (*Crataegus sp.*)
- Mind/body – may enhance autonomic balance, improve HRV
  - Biofeedback, meditation, yoga
Note: Please see the module on Dietary Supplements for more information about how to determine whether or not a specific supplement is appropriate for a given individual. Supplements are not regulated with the same degree of oversight as medications, and it is important that clinicians keep this in mind. Products vary greatly in terms of accuracy of labeling, presence of adulterants, and the legitimacy of claims made by the manufacturer.

AUTHOR

“Heart Rate Variability and Arrhythmias Summary” was written by Russell H. Greenfield, MD.

RESOURCES

1. Natural Medicines Database
2. www.heartmath.com