Male sexuality and cardiovascular disease

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Ask about sexual health

- Sexuality is a key domain in the lives of men and women
- Described as “most important” or “very important” bonding factor across orientation and age groups
- Sexual activity continues and is important through all stages of life
Sexuality and aging

- Population based study in Perth Australia
- 3,274 men aged 75-95
- Questionnaires about sexual life and activity, four year intervals
- 48.8% Sex at least somewhat important
- 30.8% At least one sexual encounter in the past 12 months
- 43% Sexual activity less often than preferred

Ann Intern Med 2010;153:693-702
Sexual dysfunction at all ages

- Massachusetts Male Aging Study
- 40% of men by age 40 (ED, decreased libido, abnormal ejaculation)
- ED and premature ejaculation most common
- ED increases in an age-dependent fashion
- 43.5% ED prevalence in elderly US men (75-85)

Are we asking?

- As few as 25% of primary care physicians routinely asked patients about sexual well being
- Inadequate training
- Lack of experience
- Uncomfortable (embarrassing, terminology, provider bias, concerns about privacy)
- Limited time
Sexual history taking in men

- IIEF Questionnaire
- SHIM Questionnaire
• How do you rate your confidence that you could get and keep an erection?

• When you had erections with sexual stimulation, how often were your erections hard enough for penetration?

• During sexual intercourse, how often were you able to maintain your erection after you had penetrated your partner?

• During sexual intercourse, how difficult was it to maintain your erection to completion of intercourse?

• When you attempted intercourse how often was it satisfactory for you?
Erectile Dysfunction

- Psychogenic
- Neurogenic
- Vasculogenic
VASCULOGENIC ED

- **ED and CVD share common risk factors**
  age, hypercholesterolemia, HTN, insulin resistance/
diabetes, smoking, obesity, metabolic syndrome, sedentary lifestyle, depression

- **ED and CVD share common pathophysiological basis**
of etiology and progression

- **Numerous studies have established that:**
  ED is frequent in men with established CVD
  ED coexists with occult CAD
  ED is an independent risk factor for future cardiovascular events both in men with
  established CVD and in men with no known CVD

Int J Clin Pract 2010;64:848-52
CVD and sexual dysfunction

- CAD, CHF, Recent MI, CABG, ICD implantation, Cardiac Transplantation
- Decline in frequency and satisfaction of sexual activity
- Patient or partner worry that sexual activity will worsen the underlying condition or cause death
- Interrelated with anxiety and depression related to overall medical condition
- Side effects of medications (diuretics, beta-blockers)
- Coexistent risk factors
Sexual Dysfunction Post MI

- 50% - 75% of men report sexual dysfunction

- Post-MI: regular sexual activity increases the risk of re-infarction and death from 10 chances in 1 million per hour to 20-30 chances in 1 million per hour

- The relative risk of MI does not appear to be higher in subjects with a history of MI than in those without prior known CAD.

*JAMA, 1996;275:1405-1409*
Reducing Risk

- Regular exercise and Medical therapy can moderate risk
- Cardiac Rehab
- Treatment of psychosocial disorders
- Reassurance of low attributable risk of MI
AHA Statement on sexual activity and cardiovascular disease

- Sexual activity is reasonable for patients with CVD who are determined to be at low risk for cardiovascular complications
- Consider exercise stress testing if not low risk or if unknown risk to assess exercise capacity
- Sexual activity is reasonable if able to perform >3-5 mets
- Encourage cardiac rehab and regular exercise to reduce risk
- Defer sexual activity for unstable, decompensated or severe symptoms OR if symptoms occur during sexual activity

Circulation 2012
Princeton III Guidelines

“ A multidisciplinary collaborative tradition dedicated to optimizing sexual function and preserving cardiovascular risk”
Sexual inquiry of all men

ED confirmed

Exercise ability

Indeterminate risk

Low Risk

Advice, treat ED

High Risk

Cardiologist

Stress test

Low risk

High risk
Low Risk

- Successful revascularization
  CABG, Stent, Angioplasty
- Asymptomatic controlled hypertension
- Mild valvular heart disease (incl. prothetic valves and successful transcatheter valve intervention)
- NYHA I or II (if able to complete 5 mets of exercise)
- Mild stable angina
- Rate controlled afib/flutter, pacemaker, ICD
- HCM and compensated congenital heart disease
High Risk

- unstable/refractory angina
- uncontrolled hypertension
- NYHA IV
- recent MI without intervention (<2 weeks)
- high risk arrhythmia
- ICD frequent shocks
- poorly controlled a-fib
- HCM, Valve disease - moderate to severe
Intermediate Risk

- Mild to moderate stable angina
- MI without intervention (2-8 weeks)
- NYHA III
- PAD/Stroke/TIA
Treatment

- PDE5 Inhibitors - “…useful for the treatment of ED in patients with stable CVD”
- Block the cleavage of 3’5‘cGMP - key mediator of erection
- PDE5 - high concentrations in the entire urogenital system especially in cavernous bodies
- Ach (parasympathetic) - NO release- guanylate cyclase activation
Pharmacokinetics

- T-max = time to C-max (onset of action)
- T-1/2 = time to fall to 1/2 C-max (duration)
- T-max
  - vardenafil > sildenafil >> tadalafil (29% decrease with food)
- T-1/2
  - tadalafil >> vardenafil, sildenafil
Dose adjustment

- CYP3A Inhibitors
  erythromycin, ketoconazole, itraconazole, cimetidine, protease inhibitors

- sildenafil 25mg, tadalafil 10mg, vardenafil 2.5

- Age > 65
  sildenafil 25mg, vardenafil 5mg

- CrCl <30
  sildenafil 25mg, tadalafil 5mg

- Childs A/B
  sildenafil 25mg, tadalafil 10mg, vardenafil 5mg (10)
## Blood pressure effects

<table>
<thead>
<tr>
<th>Drug</th>
<th>BP</th>
<th>Alpha blocker</th>
</tr>
</thead>
<tbody>
<tr>
<td>sildenafil</td>
<td>8.4/5.5 mm</td>
<td>4 hour interval</td>
</tr>
<tr>
<td>tadalafil</td>
<td>1.6/0.8 mm</td>
<td>stable dose 5mg</td>
</tr>
<tr>
<td>vardenafil</td>
<td>7/8 mm</td>
<td>stable dose 10mg</td>
</tr>
</tbody>
</table>
Use in cardiovascular disease

- Safety of PDE5 unknown in severe AS or HCM
- NEVER USE WITH NITRATES
- Hold nitrates 24 hours for recent sildenafil, vardenafil
- Hold nitrates 48 hours for recent tadalafil
- Use with caution
  - MI < 6mo, stroke, life threatening arrhythmia, 90/50, 170/100
- Sickle cell, MM, leukemia --> risk of priapism
Efficacy

- high percentage of first responders
- 3-8 attempts to reach max efficacy
- convert non-responders
  re-counsel on use, adjust dose, timing, treat
  concomitant disease (adjust meds), treat concurrent
  hypogonadism, consider daily dosing
Alternative treatments

- Topical alprostadil (suppository or gels) overall not as effective as PDE5 inhibitors alternative if PDE5 contraindicated autonomic nerve damage (surgical) - effective

- ICI (PGE-1, Papaverine, Phentolamine) alternative or effective in non-responders *safe with anticoagulation

- VED

- OTC (Yohimbine, L-Arginine)
Sexuality and CVD

- Sexual history is important in asymptomatic patients AND in the setting of known CVD
- Sexual health is vital to overall quality of life, psychological health and to healthy relationships
- Ask in a professional and measured way
- Know who is high risk and who is low risk and when to consider testing
- Available treatments can be safe and effective