Men’s Sexual Health
Activity Overview
This activity will give an introduction to erectile dysfunction, the management and possible therapies.

Target Audience
This activity is intended for medical oncologists, hematologist, primary care physicians and urologists.

Instructions to Receive Credit
To receive credit, read the introductory CME material, watch the webcast, and complete the evaluation, attestation, and post-test, answering at least 70% of the post-test questions correctly.
This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of Med-IQ and Roswell Park. Med-IQ is accredited by the ACCME to provide continuing medical education for physicians.

Med-IQ designates this enduring material for a maximum of 0.25 AMA PRA Category 1 Credit™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.
Ahmed Aly Hussein Aly, MD
Assistant Professor of Oncology
Urology
Roswell Park Comprehensive Cancer Center
Buffalo, NY
<table>
<thead>
<tr>
<th>Activity Planners</th>
</tr>
</thead>
</table>
| **Ashley Snowden**  
Director, Physician and Corporate Relations  
Roswell Park Comprehensive Cancer Center  
Elm & Carlton Streets  
Buffalo, NY |
| **Samantha Gordon, MS**  
Accreditation Manager  
Med-IQ  
Baltimore, MD |
| **Danielle M. Fleischmann, CPC**  
Physician Relations Liaison  
Roswell Park Cancer Institute  
Elm & Carlton Streets  
Buffalo, NY |
| **Amy Sison**  
Director of CME  
Med-IQ  
Baltimore, MD |
Med-IQ requires any person in a position to control the content of an educational activity to disclose all relevant financial relationships with any commercial interest. The ACCME defines “relevant financial relationships” as those in any amount occurring within the past 24 months that could create a conflict of interest (COI). Individuals who refuse to disclose will not be permitted to contribute to this CME activity in any way. Med-IQ has policies in place that will identify and resolve COIs prior to this educational activity. Med-IQ also requires faculty to disclose discussions of investigational products or unlabeled/unapproved uses of drugs or devices regulated by the US Food and Drug Administration.
Disclosure Statement

The content of this activity has been peer reviewed and has been approved for compliance. The faculty and contributors have indicated the following financial relationships, which have been resolved through an established COI resolution process, and have stated that these reported relationships will not have any impact on their ability to give an unbiased presentation.

Ahmed Aly Hussein Aly, MD, has indicated no real or apparent conflicts.

The peer reviewers and activity planners have no financial relationships to disclose.
Upon completion, participants should be able to:

- Recognize the steps on how to properly diagnose ED
- Understand the etiology of ED
- Be able to properly advise patients of potential treatments for ED
Anatomy

• 2 corpora cavernosa and corpus spongiosum.

• Corpora Cavernosa- sinusoids, smooth muscle trabeculae, elastic fibers.

• Corpus Spongiosum- urethra, distally becomes the glans.

Image from: https://somepomed.org/articulos/contents/mobipreview.htm?0/26/418
Physiology

Smooth muscle relaxation and arterial dilation—↑ blood flow

Venous Occlusion—Maintaining blood within corpora

Contraction of ischiocavernosus and bulbospongiosus—↑ blood flow

Image from: https://somepomed.org/articulos/contents/mobipreview.htm?2/47/2802
Definition of ED

• “Inability to attain or maintain penile erection for satisfactory intercourse”

• ED- ↑ risk of future CV events (MI, CVA, all-cause mortality)

• Organic, Psychogenic, Mixed

NIH Consensus Conference. Impotence. JAMA, 1993. 270: 83
Prevalence

• Massachusetts Male Aging Study (MMAS)- 52% (40-70 years in the Boston area)

• Cologne study- 19% (30-80 years, age-related increase from 2.3% to 53%).

• Summary: ≈ 30-40%, increases with age

**Vasculogenic**

<table>
<thead>
<tr>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreational habits (i.e., cigarette smoking)</td>
</tr>
<tr>
<td>Lack of regular physical exercise</td>
</tr>
<tr>
<td>Obesity</td>
</tr>
<tr>
<td>Cardiovascular diseases (e.g. hypertension, coronary artery disease, peripheral vasculopathy)</td>
</tr>
<tr>
<td>Type 1 and 2 diabetes mellitus; hyperlipidaemia; metabolic syndrome; hyperhomocysteinemia</td>
</tr>
<tr>
<td>Major pelvic surgery (e.g., radical prostatectomy) or radiotherapy (pelvis or retroperitoneum)</td>
</tr>
</tbody>
</table>
## Etiology

<table>
<thead>
<tr>
<th>Neurogenic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Central causes</strong></td>
</tr>
<tr>
<td>Degenerative disorders (e.g., multiple sclerosis, Parkinson’s disease, multiple atrophy, etc.)</td>
</tr>
<tr>
<td>Spinal cord trauma or diseases</td>
</tr>
<tr>
<td>Stroke</td>
</tr>
<tr>
<td>Central nervous system tumours</td>
</tr>
<tr>
<td><strong>Peripheral causes</strong></td>
</tr>
<tr>
<td>Type 1 and 2 diabetes mellitus</td>
</tr>
<tr>
<td>Chronic renal failure; chronic liver failure</td>
</tr>
<tr>
<td>Polyneuropathy</td>
</tr>
<tr>
<td>Surgery (major surgery of pelvis/retroperitoneum) or radiotherapy (pelvis or retroperitoneum)</td>
</tr>
<tr>
<td>Surgery of the urethra (urethral stricture, urethroplasty, etc.)</td>
</tr>
</tbody>
</table>

Sexual and Reproductive Health, EAU Guidelines 2020
### Etiology

#### Anatomical or structural
- Hypospadias; epispadias; micropenis
- Phimosis
- Peyronie’s disease
- Penile cancer (other tumours of the external genitalia)

#### Hormonal
- Diabetes mellitus; Metabolic Syndrome;
- Hypogonadism (any type)
- Hyperthyroidism
- Hyper- and hypocortisolism (Cushing’s disease, etc.)
- Panhypopituitarism and multiple endocrine disorders

---

Sexual and Reproductive Health, EAU Guidelines 2020
### Mixed pathophysiology pathways

- Chronic systemic diseases (e.g., diabetes mellitus, hypertension, metabolic syndrome, chronic renal failure, chronic liver disorders, hyperhomocysteinemia, hyperuricemia, etc.)
- Psoriasis; gouty arthritis; ankylosing spondylitis; non-alcoholic fatty liver; chronic periodontitis; open-angle glaucoma; inflammatory bowel disease, chronic fatigue syndrome, allergic rhinitis, obstructive sleep apnoea, depression
- Iatrogenic causes (e.g. TRUS-guided prostate biopsy, etc.)

### Drug-induced

- Antihypertensives (i.e., thiazide diuretics, beta-blockers)*
- Antidepressants (selective serotonin reuptake inhibitors, tricyclics)
- Antipsychotics
- Antiandrogens (GnRH analogues and antagonists; 5-ARIs)
- Recreational drugs (e.g., heroin, cocaine, marijuana, methadone, synthetic drugs, anabolic steroids, excessive alcohol intake, etc.)
### Etiology

**Psychogenic**
- Generalised type (e.g., lack of arousability and disorders of sexual intimacy)
- Situational type (e.g., partner-related, performance-related issues or due to distress)

**Trauma**
- Penile fracture
- Pelvic fractures
Evaluation

- History Taking (PMH, PSH, Social, Sexual, Partner)
- Physical exam (BP, BMI, penile abnormalities, etc.)
- Validated Questionnaires (IIEF, SHIM)
- Basic work-up
- Specific work-up
<table>
<thead>
<tr>
<th>Low-risk category</th>
<th>Intermediate-risk category</th>
<th>High-risk category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymptomatic, &lt; 3 risk factors for CAD (excluding sex)</td>
<td>$\geq$ 3 risk factors for CAD (excluding sex)</td>
<td>High-risk arrhythmias</td>
</tr>
<tr>
<td>Mild, stable angina (evaluated and/or being treated)</td>
<td>Moderate, stable angina</td>
<td>Unstable or refractory angina</td>
</tr>
<tr>
<td>Uncomplicated previous MI</td>
<td>Recent MI ($&gt; 2$, $&lt; 6$ weeks)</td>
<td>Recent MI ($&lt; 2$ weeks)</td>
</tr>
<tr>
<td>LVD/CHF (NYHA class I or II)</td>
<td>LVD/CHF (NYHA class III)</td>
<td>LVD/CHF (NYHA class IV)</td>
</tr>
<tr>
<td>Post-successful coronary revascularisation</td>
<td>Non-cardiac sequelae of atherosclerotic disease (e.g., stroke, peripheral vascular disease)</td>
<td>Hypertrophic obstructive and other cardiomyopathies</td>
</tr>
<tr>
<td>Controlled hypertension</td>
<td>Uncontrolled hypertension</td>
<td></td>
</tr>
<tr>
<td>Mild valvular disease</td>
<td>Moderate-to-severe valvular disease</td>
<td></td>
</tr>
</tbody>
</table>

A- Sexual activity is equivalent to walking 1 mile on the flat in 20 minutes or briskly climbing two flights of stairs in 10 seconds.

B- Sexual activity is equivalent to four minutes of the Bruce treadmill protocol.
Basic work-up

• HbA1C

• Hormonal profile (morning testosterone)

• Additional e.g. PRL, FSH, LH, PSA, etc.
Advanced work-up

- Penile duplex
- Arteriography and Cavernosography
- Psychiatric evaluation
- ICI
- NPTR (Organic vs Psychogenic)
Management

• General Measures

• Pharmacologic (oral, intracavernosal, intraurethral)

• VED

• Surgery
General Measures

• Smoking Cessation

• Weight Loss

• Exercise

• Control of Comorbidities e.g. DM, HTN, CVD
Treatment of the Cause

• Hypogonadism—TRT

• Penile Revascularization

• Psychiatric evaluation/ Referral to Sex therapist
• e.g. Sildenafil, tadalafil

• **Choice of medication:**
  1. No data comparing the efficacy and/or patient preference
  2. Frequency of intercourse
  3. Patient’s personal experience.
  4. Associated LUTS

• A meta-analysis—
  Prioritize high efficacy—Sildenafil
  Prioritize tolerability—tadalafil 10 mg

PDE5I- Contraindications

- **Contraindications:**
  - Concomitant use of nitrates (e.g. nitroglycerine, isosorbide mononitrate/dinitrate)
  - Nicorandil

- **Interactions:**
  - Antihypertensive agents (ACEI, ARBs, Ca channel blockers, β-blockers, and diuretics)- minor decrease in BP.
  - α-blockers - may result in orthostatic hypotension (especially doxazosin, mild with tamsulosin).
  - Starting dose of sildenafil 25 mg is recommended.

# PDE5I-Pharmacokinetics

<table>
<thead>
<tr>
<th></th>
<th>Sildenafil</th>
<th>Tadalafil</th>
</tr>
</thead>
<tbody>
<tr>
<td>T max</td>
<td>0.8-1 hour</td>
<td>2 hours</td>
</tr>
<tr>
<td>T 1/2</td>
<td>3-4 hours</td>
<td>18 hours</td>
</tr>
<tr>
<td>Wait time</td>
<td>0.5-1 hour</td>
<td>15-30 min</td>
</tr>
<tr>
<td>Absorption affected by food?</td>
<td>Yes (4 hours after last meal)</td>
<td>No</td>
</tr>
<tr>
<td>Window for Efficacy</td>
<td>6-8 hours</td>
<td>36 hours</td>
</tr>
</tbody>
</table>
## PDE5I- Side Effects

<table>
<thead>
<tr>
<th></th>
<th>Sildenafil</th>
<th>Tadalafil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>13%</td>
<td>15%</td>
</tr>
<tr>
<td>Flushing</td>
<td>10%</td>
<td>4%</td>
</tr>
<tr>
<td>Dyspepsia</td>
<td>5%</td>
<td>12%</td>
</tr>
<tr>
<td>Nasal Congestion</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>Dizziness</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Abnormal vision</td>
<td>2%</td>
<td>-</td>
</tr>
<tr>
<td>Back pain</td>
<td>-</td>
<td>7%</td>
</tr>
<tr>
<td>Myalgia</td>
<td>-</td>
<td>6%</td>
</tr>
</tbody>
</table>

Sexual and Reproductive Health, EAU Guidelines 2020
PDE5I- Patient Education

- Adequate trial – at least 6 attempts
- Adequate sexual stimulation
- Adequate dose
- Relation to meals
- Wait an adequate amount of time
- Avoid waiting too long

PDE5I- Non-Responders

- Check for Hypogonadism
- Switch to another PDE5I
- Combine tadalafil daily dosing with a short acting PDE5I - No RCTs

Intraurethral PGs

- Medicated pellet (MUSE™). Recommended starting dose 500 μg

- **Efficacy** - 30-66%. Constriction ring – may improve efficacy, ~30% of adherence to long-term therapy.

- **Adverse events**
  - local pain - 30%
  - dizziness with possible hypotension - 8%
  - Penile fibrosis and priapism are very rare (< 1%).
  - Urethral bleeding (5%)
  - UTI (0.2%)

Intracavernosal injections

- **Efficacy**: 85%

- First dose - always in office

- **Side effects:**
  - Penile pain
  - Prolonged erection/Priapism
  - Fibrosis
  - Bleeding/Infection

Intracavernosal injections

- **Drop-out rates** – 50%, mostly within the first 2-3 months

- **Reasons for discontinuation:**
  - Desire for a permanent modality (29%)
  - Lack of a suitable partner (26%)
  - Poor response (23%)
  - Fear of needles (23%)
  - Fear of complications (22%)
  - Lack of spontaneity (21%)

VED

- VED w/ or w/o constriction ring- Passive engorgement

- Efficacy- 90%, regardless of the cause of ED, Satisfaction- 60%

- Adverse events
  Pain, inability to ejaculate, petechiae, bruising, and numbness.
  (Remove the constriction ring within 30 minutes).

- Contraindication- bleeding disorders/anticoagulant therapy

Shockwave therapy

- Most studies suggest that SWT can significantly increase IIEF and EHS (mild vasculogenic ED)

- Prospective RCTs and longer follow-up data are needed.

- Patients with vasculogenic ED may be treated with LI-SWT, although they should be fully counselled before treatment.

### Shockwave therapy

Use low intensity shockwave treatment (LI-SWT) in patients with mild vasculogenic ED or as an alternative first-line therapy in well-informed patients who do not wish or are not suitable for oral vasoactive therapy or desire a curable option.

Use LI-SWT in vasculogenic ED patients who are poor responders to PDE5Is.

| Weak |
Penile Prosthesis

• Most invasive, irreversible

• Highest satisfaction rates (92-100% in patients and 91-95% in partners)
Penile Prosthesis- Complications

- Mechanical failure- < 5% after five years
- Infection- 2-3%, reduced to 1-2% (antibiotic-impregnated).
- Erosion- 1-6%.
- Glans ischemia and necrosis- 1.5%.
- Glans hypermobility
- Penile shortening

Sexual and Reproductive Health, EAU Guidelines 2020
Semi-Rigid/Non-Inflatable
2-Piece IPP
Conclusion

• ED is common problem, increases with age

• Sign of early Cardiovascular disease

• Different management options available (General, Pharmacologic, Behavioral and Surgical).
Instructions to Receive Credit

To receive credit, read the introductory CE material, watch the webcast, and complete the evaluation, attestation, and post-test, answering at least 70% of the post-test questions correctly.

Contact Information

• Call (toll-free) 866 858 7434
• Email info@med-iq.com

• Please visit us online at www.Med-IQ.com for additional activities provided by Med-IQ®.

Unless otherwise indicated, photographed subjects who appear within the content of this activity or on artwork associated with this activity are models; they are not actual patients or doctors.