Sexually Transmitted Diseases in the Elderly: A Growing Concern

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Objectives

- Identify the reasons for an increase in the rate of sexually transmitted infections in the elderly population
- List which sexually transmitted infections are on the rise in the elderly population
- Review basic information related to the pathophysiology of sexually transmitted infections and be able to state the treatment of choice for these infections in the general population
- Compare the treatment options for sexually transmitted infections in elderly patients compared to treatment in the general population

Disclosure

No conflicts of interests to disclose
Introduction

• Sexually transmitted diseases (STDs): broad classification of a group of pathogens or clinical syndromes acquired and transmitted through sexual activity
• >19 million new cases diagnosed annually
• No age group unaffected
  o Neonates
  o Children
  o Adolescents
  o Adults
  o Elderly
• Significant burden on the healthcare system

STD Pathogens

• Bacterial
  o Treponema pallidum (Syphilis)
  o Chlamydia trachomatis (Chlamydia)
  o Neisseria gonorrhoeae (Gonorrhea)
  o Gardnerella vaginalis, Bacteroides, others (Bacterial vaginosis)
• Protozoal
  o Trichomonas vaginalis (Trichomoniasis)
• Viral
  o Herpes simplex virus (HSV)
  o Human immunodeficiency virus (HIV)
  o Human papilloma virus (HPV)

STD Epidemiology

• Dramatic increase in older adults during the past decade
  o Overall rates have more than doubled in middle-aged and elderly adults
• Very few studies have been done to elucidate the exact reasons
• Theoretical reasons for sharp increase
  o Increased use of erectile dysfunction medications
  o Baby boomers living longer
  o Decreased use of condoms
STD Epidemiology

- 2010 AARP Report “Sex, Romance, and Relationships”
  - National survey of middle-aged and elderly adults
  - 28% reported sex at least once per week
    - 50% single, 36% married
  - 85% of men and 61% of women felt sex was important to their QOL
  - Use of condoms reported in 32% of single women who were dating and only 12% of single men who were dating

STD Epidemiology

- In ages 55-64, between 2005 and 2009:
  - Incidence of syphilis increased 70%
  - Incidence of chlamydia increased 50%
- In ages 45-65, between 2000 and 2010:
  - Incidence of syphilis increased from 900 to 2,550 cases
  - Incidence of chlamydia increased from 6,700 to 19,600 cases
- Rapid rise in areas of retirement living
  - The Villages in Florida: cases of syphilis and chlamydia have increased 71%
  - Palm Springs, CA: 50% increase

STDs and the Elderly

- Elderly patients may actually be at a higher risk for STDs than their younger counterparts
  - Weaker immune systems
  - Less likely to use condoms due to no pregnancy concerns and false belief that other elderly people are not at STD risk
  - Elderly women are more likely to experience vaginal tearing during intercourse, providing a point of entry for pathogens
- Other considerations:
  - Lack of screening on the part of both patients and healthcare providers
  - Feelings of being embarrassed or ashamed
STDs and the Elderly

• In the US, condom use is lowest for men >50 years of age
  o Use reported to be ~28% with a casual partner
  o Men 18-39 years report at least 50% use
• Low usage thought to be due to lack of concern for fears about pregnancy
• Education about condom use isn’t generally targeted to the elderly
• Many elderly women report that they do not insist their partners use condoms

STDs and the Elderly

• Sildenafil (Viagra®) first approved for erectile dysfunction (ED) in April 1998
  o Over 5 million prescriptions written in the first 6 months
  o Average age of users was 57 years
• Introduction of sildenafil to the market coincided with an increase in STD rates in the elderly
• Other medications introduced to market:
  o Tadalafil (Cialis®)
  o Vardenafil (Levitra®)
  o Avanafil (Stendra®)

STDs and the Elderly

• Some studies have attempted to determine if a correlation exists between ED medications and STDs
• Jena and colleagues – *Annals of Internal Medicine*
  o Followed ~1,400,000 men ages 40 and older
  o Risk of STDs 3x higher in those taking ED medications
  o However, no direct correlation could be identified
  o Those taking ED medications also had higher rates of STDs prior to starting these medications
STDs and the Elderly

- Lariviere and Wolff – Economic Inquiry
  - Found that sildenafil use associated with increased gonorrhea rates in elderly men
  - No other significant results found
- Results seem to suggest that those who take ED medications may be already more inclined to risky behaviors
- Further studies are needed to fully explore this relationship

The Elderly and HIV

- In 2009, almost 25% of all patients living with HIV in the US were 50 years of age or older
  - Likely a gross underestimation
- Elderly patients do not often seek screening for HIV, and it is only infrequently offered by healthcare providers
- Number will likely rise as baby boomers continue to age
- Number expected to rise to 50% in 2015

The Elderly and HIV

- Rise in number likely due to not only increase in the number of infections, but also vastly improved treatment, allowing patients diagnosed at a young age to progress to elderly status
- In early days of the HIV epidemic, most cases in seniors were due to blood transfusions
- Today, most cases in seniors are related to unsafe sex practices
The Elderly and HIV

- Older adults may mistake signs/symptoms of HIV for the normal aging process
  - Fatigue
  - Chronic pain
  - Weight loss
  - Shortness of breath
- Makes testing for HIV less likely
- Elderly patients may progress from HIV to AIDS faster than younger patients
  - Particularly true in the setting of low T-cell counts

The Elderly and HIV

- 2012 study examined the need for HIV screening and education in adults >50 years of age
  - Particular focus towards those >65 years of age
- Most patients had at least 1 risk factor for HIV
- 6x less likely to use a condom and 5x less likely to be screened for HIV compared to patients 20 years of age
- Low-risk perception of HIV exposure accounted for the lack of screenings

The Elderly and HIV

- Routine medical check-ups were the most common reason for HIV screening
  - Recommended by healthcare providers in 50% of cases
- Authors concluded that policies and practices to increase awareness of HIV in the elderly be implemented
- Increased screening of HIV should also be performed in these patients to identify infection as early as possible
STD Treatment

- In general, pharmacotherapy treatment options for the elderly do not differ from younger patients.
- However, factors such as renal and hepatic function are more likely to need to be taken into account in the treatment of elderly patients.
  - Likely to affect the dosages or frequencies utilized.
- Drug interactions are more likely to be encountered.

Review of STD Pathogens and Their Treatment Options

Syphilis
Syphilis
• “The Great Imitator”
• Caused by *Treponema pallidum*
• Notable in that it is characterized by periods of clinical disease and latency
• Spread through mucocutaneous contact
• Three active stages of disease
  o Primary
  o Secondary
  o Tertiary

Syphilis
• Diagnosis: rapid plasma reagin (RPR)
• Treatment:
  o Early Stage (within 1 year of infection)
    • Benzathine penicillin G 2.4 million units IM once
  o Late Stage
    • 3 weekly injections of benzathine penicillin G 2.4 million units IM
  o Neurosyphilis
    • IV penicillin G 3-4 million units every 4 hours for 10-14 days
    • IV penicillin G 24 million units/day as a continuous infusion for 10-14 days
  o Penicillin allergic: tetracyclines, ceftriaxone

Syphilis
• Jarisch-Herxheimer reaction
  o Immune response to cytokine release upon bacteria rupture after antibiotic administration
  o More common in secondary syphilis (70-90%)
  o Usually occurs within 2 hours of therapy but may last 12-24 hours
  o High fever, chills, myalgia, headaches, tachycardia
  o Prophylaxis: prednisone
Herpes

- Herpes Simplex Virus (HSV) Type 1
  - Typically associated with oral ulcers
- Herpes Simplex Virus (HSV) Type 2
  - Typically associated with genital ulcers
- BOTH can affect the oral OR genital areas, or BOTH
- Characterized by asymptomatic periods followed by periods of outbreaks
- Transmission
  - Kissing
  - Oral, vaginal, or anal sex

- Average of 5 outbreaks per year
- Symptoms
  - Painful blisters
  - Cervicitis
- Transmission can occur during asymptomatic periods due to subclinical shedding
- Treatment is symptomatic or preventative, NOT curative
- Treatment options
  - Acyclovir, famciclovir, valacyclovir
Chlamydia

- Caused by *Chlamydia trachomatis*
- 3 times more common in women than in men
- Clinical presentation
  - Often asymptomatic
  - Odorless, mucoid vaginal discharge
  - Cervicitis/urethritis
  - Pain or bleeding during intercourse
- Can be passed to baby during pregnancy to cause conjunctivitis and/or pneumonia

Chlamydia

- Routine screening for all sexually active women <25 years of age
- Diagnosis: nucleic acid amplification test (NAAT)
  - First void urine
  - Vaginal/endocervical swab
- Treatment
  - Azithromycin 1 gram orally once
  - Oral doxycycline for 7 days
  - Abstinence for 7 days
  - Treat all sexual contacts within prior 60 days
  - Empirically treat for gonorrhea
Gonorrhea

- Caused by *Neisseria gonorrhoeae*
- Very common in SouthEast US
- Can infect the throat and rectal areas
- Clinical presentation
  - Asymptomatic
  - Odorless vaginal discharge
  - Vaginal bleeding/pain during intercourse
- Can progress to bacteremia, arthritis, meningitis
  - 4 times more common in women than men

Gonorrhea

- Diagnosis: NAAT or culture
- CDC now lists gonorrhea as an “urgent threat” due to increasing antimicrobial resistance
- Fluoroquinolones no longer recommended due to increasing resistance
- Resistance is increasing to:
  - Cefixime
  - Ceftriaxone
  - Azithromycin
  - Tetracycline

Gonorrhea
Gonorrhea

- Empiric Treatment Options:
  - Ceftriaxone 125 mg IM once
  - Cefixime 400 mg oral once
  - Consider azithromycin or tetracycline if allergies to cephalosporins or beta-lactams is present
- ALWAYS treat empirically for chlamydia unless specifically ruled out

Bacterial Vaginosis

- Common yet underestimated disorder
- Thought to be caused by an overgrowth of pathogenic bacteria combined with a decrease of normal flora and lactobacilli
- Common pathogens
  - Gardnerella vaginalis
  - Mycoplasma hominis
  - Mobiluncus
  - Bacteroides (other than B. fragilis)
  - Prevotella
  - Peptostreptococcus

Bacterial Vaginosis

- Often diagnosed concomitantly with STDs, though not always
- Diagnosis
  - Nugent system - gram stain scoring system
  - Wet mount – characteristic "fishy" odor
- Clinical presentation – Highly Variable
  - Vaginal discharge
  - Irritation/pruritis
  - Vaginal odor
Bacterial Vaginosis

- Treatment
  - Metronidazole 500 mg BID or 250 mg TID for 7 days
  - Metronidazole 2 grams orally once
  - Metronidazole 0.75% vaginal gel for 5 nights
  - Clindamycin 2% cream vaginally for 7 nights

Trichomoniasis

- Caused by *Trichomonas vaginalis*
- High association with other STDs, particularly HIV
- Women manifest symptoms more often than men

Trichomoniasis

- Clinical presentation
  - Discolored or malodorous vaginal discharge
  - "strawberry cervix"
  - Inflammation of the urethra, cervix, or vagina
- Diagnosis
  - Culture – gold standard
  - Wet mount preparation to look for "tumbling motility" characteristic of *T. vaginalis*
- Treatment
  - Metronidazole 2 grams orally once
Pelvic Inflammatory Disease
• Inflammation of the upper genital tract
• Associated with a variety of complications
  o Infertility
  o Ectopic pregnancy
  o Chronic pelvic pain
• Occurs when microorganisms move from the lower genital tract to the uterus, fallopian tubes, and ovaries
• Often associated with STDs, and usually polymicrobial
  o Anaerobes
  o Chlamydia/gonorrhea
  o Mycoplasma genitalium

Pelvic Inflammatory Disease
• Treatment is usually broad and empiric
• Many treatment regimens are possible
• Antibiotics
  o Levofloxacin
  o Ceftriaxone plus doxycycline
  o Cefoxitin/probenecid plus doxycycline
  o Optional: metronidazole
  o Others: clindamycin, moxifloxacin, azithromycin
• IV antibiotics can be used in the inpatient setting

HIV
• Highly Active Antiretroviral Therapy (HAART) should be started in all newly diagnosed patients regardless of viral load or CD4
• Generally begin a combination of at least 3 drugs
• Goal is to keep viral load undetectable (<20) and CD4 high (ideally >500)
• Less information about use of antiretrovirals in the elderly
Role of the Pharmacist

- EDUCATION!!!
- Advise other clinicians on appropriate therapy choice and provide dosing recommendations and assessment for drug interactions
- Patients should be counseled on the proper use of condoms
- Also provide recommendations to patients regarding screenings
  - At home HIV testing now available

Prevention

- Prevention is key, even for the elderly!!!
- https://www.youtube.com/watch?v=6kOewRGhtx8

Conclusions

- STDs are increasing at an alarming rate in elderly patients
- Elderly patients are less likely to be aware of risk factors for infection, and may therefore be less likely to seek screening measures
- Drug therapy is generally the same in the elderly compared to younger patients, but may require more consideration of patient specific factors
- Prevention is key, and pharmacists are in a unique position to counsel patients on preventative measures
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