GRAYING
OF
HIV IN AMERICA

Lecture Designed for Primary Care Clinicians

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Disclosure of Financial Relationships

This speaker has no financial relationships with commercial entities
Physiological diversity increases as we age

New York Assn on HIV over 50 [www.nyahof.org]
Weyer, Susan M. Resident & Staff Phys 2004;50:10-16

DEFINING OLD

<table>
<thead>
<tr>
<th>Category</th>
<th>Age Description</th>
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<tbody>
<tr>
<td>Senior</td>
<td>50 - 64</td>
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<tr>
<td>Elderly Senior</td>
<td>65+ (independent ADLs)</td>
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<tr>
<td>Young Old</td>
<td>65-74</td>
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<tr>
<td>Older-elderly</td>
<td>75-84</td>
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<tr>
<td>Oldest-old (old-old)</td>
<td>85+</td>
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<tr>
<td>Frail elderly</td>
<td>Those over 50 dependent on others for day-to-day care</td>
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Trends in Healthcare

Do they jeopardize meaningful care in older adults?

- 45 Million uninsured includes elderly, inadequately insured 75 million people
- Escalating cost of care /billing and reimbursement challenges
- Productivity pitted against meaningful quality care
- Increasingly higher standards and expectations of care
- Inconsistent delivery of quality of care (disparities/gaps widening)
- Increasing paperwork and other “down time” demands
- Need to incorporate specialty care (HIV/DM/Seniors) with general primary care
- Barriers to access to care, medication/durable equipment/supplies
- Projected shortage of sub specialists, including geriatricians
- Up to 25% physicians >50 year old physicians leaving practice
- Declining medical student interest in primary care (a little spike in 2006-2007)
- US budget deficit >$400 billion
- Anticipated Medicare bankruptcy by 2015
- Physician voice weak in congress
- Waning congressional advocacy for teaching hospitals

AGING

- Heart disease
- Stroke
- Diabetes
- Hypertension
- Kidney disease
- Cardiovascular diseases
- Lung disease
- Eye/vision/dental
- Pain
- Bone disorders
- Malignancies
- Hepatitis C
- STDs
- Acute disorders
- Alzheimer's Disease
- Mental health
- Alcohol/Substance
THE LANDSCAPE

CURRENTLY

“BOOMERS” Born 1946-1964

- 35 million (12%) US population 65+ yr
- Median age 74.4 yrs
- 57% women
- 10% live below poverty level
- Increasing minority population

USA

2030 Projection Non-white populations will represent 72\% of the older US population (CA>FL>NY)

BY 2050

“BOOMERS” Born 1946-1964

- Elderly population climbing but with decreasing value of the older American
- 1 in 5 Americans (21\% or 86.7 million people) will be 65+
- Majority will have multiple chronic illnesses
- Downward economic drift
- Overall healthcare expenditures expected to rise by 35\%

SHIFTING AGE DEMOGRAPHICS-Global

- No precedent for the lengthening life span of very old people
- By 2050 persons 60 years or older are projected to grow to almost 2 billion
- Asia has the largest share of the world’s old people (54%). Europe follows with 24 percent.

CULTURAL CHASM

- Number of immigrants has almost tripled since 1970 (9.6 million to 26 million)
- Increased cultural, ethnic, and racial diversity will impact clinician-patient relationships
- Cultural and communication barriers may lead to worsened health disparities
SUBGROUPS/Older People with HIV

- Long-term survivors growing old with HIV
- Newly diagnosed with HIV at older ages
- Older people at risk (undiagnosed/unaware of risks)


AGING PROCESS
Normal Aging Process

- Negative nitrogen balance and deterioration in muscle mass and function
- Diminished immune reserve and response
- Altered pharmacokinetics due to altered absorption and metabolism
- Sexuality delayed response longer refractory
- Decreasing brain mass, slowing cognitive function
- Greater risk of adverse reactions to medications
- Higher prevalence of other chronic illnesses (DM2, Cardiac, Cancer, Dementia, etc)

Age Impacts HIV

- Thymic reserves decline throughout adulthood
- Decreased rate of T cell replacement
- CD4 response to ARVT flat
- Latent TBI reactivation
- Difficulty with access to care increases M&M
- More likely to present with oral candidiasis rather than acute viral syndrome *

*Vanhens et al, 8th CROI, Feb 2001, abstract 413
Age Impacts HIV

- Delay in diagnosis impacts outcomes
- Earlier dx of KS w/ higher CD4 counts
- Hormonal fluctuations may affect viral load
- Calcium depletion impacts bone health, and immune system
- Reduced healthy antibody production and function

HIV Impacts Aging

- Limited information available
- Reports of more aggressive AIDS related and non-AIDS related cancers
- Maybe more rapid deterioration in cognitive function perhaps related to aging, however, conditions occur together
- Increased risk of cardiovascular related illnesses and catastrophic events (attributed to PI therapy, hyperlipidemias)
**HIV Impacts Aging**

- HIV may exacerbate age-related susceptibility to infection related morbidity and mortality (pneumonia)
- Increased rate of senescence
- Polypharmacy with increasing age and morbidities increases potential for adverse drug-drug interactions

US-based CDC report on implications of age in people with HIV infection

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**Age Impacts HIV**

- Italian Seroconversion Study: decreased median survival after seroconversion (7.9 yrs post seroconversion for ages 45-54 vs. 12.5 years for 15-25)
- Likely to die w/in 1 month of AIDS diagnosis
- Likely to be diagnosed with OI at initial presentation

1 Phillips et al. JAIDS 1991 4:970-5
Older people progress to AIDS faster than younger ones

Worse disease on presentation than younger people

Advanced disease at time of diagnosis

Ball SC. The older patient with HIV infection. AIDS Read 2006;16:187-188, 191-192

**Studies needed to evaluate tolerability and efficacy of ARVT in older individuals

Confirmation of blunted CD4 response to ARVT *

More rapid CD4 decline in older individuals **

Information regarding age related dose adjustment lacking

ZDV decreased metabolism w/ high peak and trough levels (same as seen in liver dz)


**Lederman et al. AIDS 2000 14:2635-42

RESPONSE TO ARVT

- 25% twelve month mortality rate from time of diagnosis if inadequate care
- 50% five year survival rate once in care
- Adherence challenges due to memory problems, visual impairment, physical disabilities

Ball SC. The older patient with HIV infection. AIDS Read 2006;16:187-111188. 191-192

RESPONSE TO ARVT

- Blunted CD4 response to ARVT
- Decreased rate of T cell replacement
- ARVT effective in older patient, but limited by intolerable side effects, adverse drug reactions, and drug-drug interactions
PARADIGM SHIFT

“A shift in the causes of death toward non-HIV-related causes suggests that a more comprehensive health care approach may be needed for optimal life expectancy; this may include enhanced screening for malignancy and heart disease as well as preventive measures for liver disease and accidents.”

PARADIGM SHIFT

- Health maintenance interventions performed on site result in improved delivery of care

- When practitioners associate screening and prevention with HIV patients more likely to receive that specific care (pap smears)


(Dept of Med JHU School of Med presented in part at Soc of Gen internal Med 26th Annual Meeting, Vancouver, BC April 30, 2005)

PARADIGM SHIFT

- Patients with less than 50 T cells less likely to receive appropriate vaccinations

- Clinicians fail to consider other indicators for interventions (vaccines, dilated retinal exams)

CARDIOVASCULAR

- Increased risk of cardiovascular related illnesses and catastrophic events (attributed to PI therapy)

- Dyslipidemia, insulin resistance and DM


CANCERS

General Population

Most common - MEN
- Prostate
- Lung
- Colorectal

Most common - WOMEN
- Breast
- Lung
- Colorectal

Lung cancer leading cause of death in men and women
CANCERS
HIV Infected Population

- Anal cancer (59x)
- Hodgkins (18x)
- Liver cancer (7x)
- Lung (3.6x)
- Skin, Melanoma, Mouth, Throat (3x)
- Colorectal (2.4x)

Kaposi’s
Non-Hodgkin
Cervical cancer
Prostate


CANCERS
HIV Infected Population

- Strong association between development of cancer and low T cell counts, regardless of Viral Load


Recommendations for Screening

USPSTF GRADING SYSTEM
A-Strongly recommended, evidence supports screening improves outcomes, benefits outweigh harm
B-Recommended, at least fair evidence that screening improves outcomes, benefits outweigh harm
C-No recommendation, the balance of benefits and harm too close to make recommendation
D-Recommendation against routine screening of asymptomatic people. Evidence that service is ineffective or that harm outweighs benefit.
I-Insufficient evidence to recommend for or against routine screening, conflicting data, balance of benefit vs harm cannot be determined
Cardiovascular Disease

Risk factors:
- Protease inhibitor therapy
- Men > 45 y.o.
- Women > 55 y.o.
- Cigarette smoking
- HDL-C < 40 mg/dl
- Phx premature heart disease
  - Male first degree relative < 55 y.o.
  - Female first degree relative < 65 y.o.

Screening

(A) Hyperlipidemia

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>LDL Goal</th>
<th>Initiate lifestyle changes:</th>
<th>Consider drug rx:</th>
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<tbody>
<tr>
<td>CHD or Risk equivalent (DM, PAD)</td>
<td>&lt;100 mg/dl</td>
<td>&gt;100 mg/dl</td>
<td>&gt;130 mg/dl</td>
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<tr>
<td>10 yr risk &gt; 20%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2+ Risk Factors</td>
<td>&lt;130 mg/dl</td>
<td>&gt;130 mg/dl</td>
<td>&gt; 160 mg/dl</td>
</tr>
<tr>
<td>0-1 Risk Factor</td>
<td>&lt;160 mg/dl</td>
<td>&gt;160 mg/dl</td>
<td>&gt;190 mg/dl</td>
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</table>
Screening

(A) Diabetes
Risk factors:
- Family history
- Ethnicity (Black, Hispanic, Native Amer, Asian, Pacific Is)
- Gestational DM
- Impaired fasting or glucose intolerance
- Hyperlipidemia
- Hypertension
- BMI >25 kg/m²
- Sedentary life style
- Polycystic ovarian syndrome
- Vascular disease
- Protease inhibitor therapy

QUESTION

Which of the following patients should have a dilated retinal examination this year?

A. 50 y.o. man w/ CD4 556, HBA1C 8.2
B. 50 y.o. woman w/ CD4 1244
C. 62 y.o. man w/ CD4 188
D. 60 y.o. woman w/ CD4 33
E. All of the above
Screening

Glaucoma screen
- Start age 50
- High risk populations start age 40 (African Americans, hfx glaucoma)

Screening

(A) Cervical Cancer Screening

Continue screening > 65 y.o. if high risk

HIV infection, h/o cervical dysplasia, h/o HPV, immunosuppression, h/o multiple sex partners, smoking and continued abnormal pap results warrant on going screening and intervention.

USPSTF
Screening

(A) Colon Cancer

Annual FOBT and Sig q 5 years or Colonoscopy q 10 years

USPSTF
NYSDOH AIDS INST

Screening

(B) Osteoporosis

All women > 65 y.o.
Risk benefit profile supports screening oldest old

USPSTF
Screening

(I) Thyroid Function

USPTSF

Screening

Cognitive function
- Alertness and orientation
- Naming objects
- 3 object recall after 5 minutes

www.hivguidelines.org
USPSTF
Screening

Mental Health
- Psych history
- Sleep
- Appetite
- Depression
- Anxiety
- PTSD
- Suicidal/homicidal

www.hivguidelines.org
USPSTF

Screening

- Illicit drugs
- Alcohol
- Prescription narcotics

www.hivguidelines.org
PREVENTION/SCREENING

Immunizations
- Influenza
- Td
- Pneumonia vaccine
- HBV, HAV
- PPD

USPSTF

Sexual Function

Sexual function:
- Changes can be alarming to aging individuals
- Decreases in sex hormone levels
- Erectile enhancers interaction with PI
- Secondary transmission prevention counseling
SYSTEMATIC APPROACH TO SCREENINGS and HEALTH MAINTENANCE

- Colon cancer
- Breast cancer
- Prostate cancer
- Lung cancer
- Cardiovascular
- Bone density
- Vision/glaucoma
- Hearing
- Nutrition/diet
- Exercise/ADLs
- Oral health
- Hepatitis

- Urinary
- Sexual (function, behaviors)
- STIs
- Cognition
- Mental health
- Tobacco
- Drugs
- Alcohol
- Immunizations
- Housing
- Transportation

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