HIV and Women Health Management

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Women Health Management

- Women ageing with HIV infection
  - CV disease
  - BMD
  - Renal function
  - Neurocognitive dysfunction
  - Cancer

- Co-Morbidities related to gender

- Psychosocial aspects

- Ageing and Menopause

- STD and Sexual Dysfunction

- Fertility issues and contraception (Dr Manigart)

- Cancer (Dr Konopnicki)
HIV and the ageing population

- By 2015, nearly 50% of persons living with HIV/AIDS will be older than 50 years\(^1\)

- Life expectancy of women with HIV at age 20 years is 50.2 (0.45) years\(^2\)

- VACS Index (CD4 count, HIV-1 RNA, haemoglobin, HCV serostatus, eGFR, FIB-4 and age) can be used to predict 5-year, all-cause mortality\(^3\)

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Change in percentage of patients >50 years of age among new HIV cases in Europe

Increase in proportion of non-AIDS mortality in women

French AL, et al. JAIDS 2009; 51;399–406

- 1995 – 1996: N=228, Missing=1, Indeterminate=1
- 1997 – 1998: N=120, Missing=1
- 2003 – 2004: N=100, Missing=6

Categories:
- Non-AIDS: Miscellaneous
- Non-AIDS: Overdose/Trauma
- Non-AIDS: Cancer
- Non-AIDS: Liver
- Non-AIDS: Heart
- AIDS
The benefits of ART outweigh the associated long-term negative side-effects of ART toxicity

Benefits of ART

Dramatic reduction in overall mortality resulting in a near normal life expectancy\(^1,2\)

Long-term cost of ART

Increased risk of developing an age-related comorbidity\(^1,2\)

Age-related considerations in women

- Polypharmacy and drug–drug interactions
- Menopause

Co-morbidities and diseases of ageing
- CV disease
- Bone loss
- Renal function
- Neurocognitive dysfunction
SHCS: Number of co-medications in patients with HIV stratified by age

N=1501

Patients (%)

Number of co-medications

< 50 Years
> 50 Years

Back D, University Liverpool Presentation on HIV therapy in aging populations Available at: http://pcwww.liv.ac.uk/ehls/back/HIV-ageing/. Accessed March 2011
Drug–drug interactions

- ARVs can interact with commonly used drugs\(^1,2\)

- Drugs specifically for older patients might include:
  - Oral contraceptives/HRT
  - Ca++ channel blockers
  - ACE inhibitors and other antihypertensive drugs
  - Bisphosphonates
  - Calcitonin
  - Proton pump inhibitors
  - Antidepressants
  - Statins
  - Lipid-lowering agents

A list of antiretroviral drug interactions can be found at: [http://www.hiv-druginteractions.org/](http://www.hiv-druginteractions.org/)

Menopause

- Earlier menopause increases risk of medical diseases and mortality

- Conflicting data in HIV infected women
  - Earlier onset: many confounding factors (smoking, IDU, black race, lower education level)
  - Lower CD4 cell count

- Low physical activity

- IDU

- Alteration of ovarian reserve???
HIV in menopausal women

*Increased menopausal symptoms*

- Psychological symptoms were most prevalent (89%), followed by arthralgias (63%) and vasomotor symptoms.
- What about treatment?

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HIV in menopausal women

*Increased risk of chronic diseases of ageing*

- Cardiovascular disease
- Type 2 diabetes mellitus
- Osteoporosis
- Overall risk of many types of cancer
- HIV-infected women may acquire these age-related diseases earlier; they may be more severe

CV risk factors increased in HIV-infected women

- Traditional CV risk factors such as serum lipoproteins are increased in HIV-infected women

- HIV infection associated with higher triglycerides and lower HDL cholesterol

- Obese women and women taking ART demonstrate higher total cholesterol and LDL

- Sex- and age-standardized morbidity ratio of MI compared with the general population was estimated as 1.4 (95% CI 1.3–1.6) in men and 2.7 (95% CI 1.8–3.9) in women from the FHDH-ANRS CO4 cohort\(^1\)

- More data in older women on the effects of ART on CV risk factors and MI risk is needed

Osteoporosis Definitions

- **Normal:** Value for bone mineral density (BMD) within one standard deviation of the young adult female reference mean (T-score greater than or equal to -1 SD).

- **Low bone Mass (osteopenia)** T-score less than -1 and greater than -2.5 SD

- **Osteoporosis** T-score less than or equal to -2.5

- **Severe Osteoporosis:** T-score less than or equal to -2.5 in the presence of one or more fragility fractures
Dual-Energy X-Ray Absorptiometry (DXA) Scan of the Lumbar Spine.

Reference: L1–L4

<table>
<thead>
<tr>
<th>Region</th>
<th>BMD g/cm²</th>
<th>Young-Adult % T score</th>
<th>Age-Matched % z score</th>
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<tbody>
<tr>
<td>L1</td>
<td>0.805</td>
<td>71 -2.7</td>
<td>81 -1.5</td>
</tr>
<tr>
<td>L2</td>
<td>0.743</td>
<td>61 -3.9</td>
<td>70 -2.7</td>
</tr>
<tr>
<td>L3</td>
<td>0.706</td>
<td>59 -4.1</td>
<td>67 -2.9</td>
</tr>
<tr>
<td>L4</td>
<td>0.786</td>
<td>66 -3.4</td>
<td>75 -2.2</td>
</tr>
<tr>
<td>L1–L4</td>
<td>0.758</td>
<td>64 -3.5</td>
<td>73 -2.3</td>
</tr>
</tbody>
</table>

Trend: L1–L4

<table>
<thead>
<tr>
<th>Date Measured</th>
<th>Age yr</th>
<th>BMD g/cm²</th>
<th>Change from Baseline %</th>
<th>%/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>04/13/2005</td>
<td>66.7</td>
<td>0.758</td>
<td>-4.9</td>
<td>-5.4</td>
</tr>
<tr>
<td>05/14/2004</td>
<td>65.8</td>
<td>0.798</td>
<td>Baseline Baseline</td>
<td></td>
</tr>
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</table>
Risk of osteoporosis (T-score ≤ –2.5) in HIV-infected patients and controls: A meta-analysis

- Higher prevalence of bone loss in PI-treated (LPV/r and IDV/r) patients

- Specific association between NRTIs, especially tenofovir, and Fanconi syndrome

Risk of Fractures

- 8525 HIV-infected
- 2,208,792 HIV-
- 1996- 2008

Managing bone disease

- Consider:
  - Traditional risk factors
  - Exclude vitamin D deficiency
  - FRAX scoring
  - DEXA every 2–5 years
  - Bisphosphonates

FRAX calculation tool available at http://www.shef.ac.uk/FRAX/
Bone turnover markers

- Osteocalcin (OC): synthesized and secreted by osteoblasts, and which is a specific marker of osteoblast function. Serum levels correlate well with bone formation.

- Bone-specific alkaline phosphatase (BSAP): an osteoblast enzyme. Serum concentrations demonstrate a linear relationship with osteoblast activity.

- Type I collagen cross-linked C-telopeptide (CTx): a marker of collagen degradation, and a biochemical indicator of bone resorption.
Treatment effect?

- Decreased bone density has been found in both treatment naive and treated patients
- Bone loss also seen in monotherapy
- Ongoing bone loss in some studies
  - Toxicities
  - Ongoing Disease–related pathogenic factors

Who to treat?

- Hip or Vertebral fractures

- T score less or equal -2.5 femoral neck, total hip or spine by DXA

- Osteopenia at above site
  - And 10-year hip fracture probability > 3% (FRAX)
  - Or 10-year all major osteoporosis related fracture superior to 20%
Cognitive function and women with HIV

- Patients with HIV appear to be at higher risk of age related cognitive decline, mild cognitive impairment or dementia

- A small number of studies have reported a significantly higher prevalence of neurocognitive impairment among women with HIV compared to HIV controls, regardless of symptom status

- In a small study of matched HIV+ men (n=45) and women (n=30), the women performed significantly worse than men on measures of motor skill and probabilistic learning

- More gender-specific data in the HIV+ population is required

Depression in HIV infected Women

- Approximately 50% of HIV-infected women, nearly double that of HIV-infected men

- 1 in 5 HIV-infected women meet the classification for major depressive disorders (1:20 in men)

- Access to pharmacologic and psychiatric therapy increases the use of HAART among HIV-infected women with depression
Treatment of Depression

- Concurrent treatment of HIV and depression lead to similar response to HAART

- Efficacy of HAART in improving depressive symptoms

- Treating depression improves HIV outcomes

- Screening for depression should be used in the clinical setting
Sexual dysfunction

- Female Sexual Function Index:
  - Desire
  - Arousal
  - Lubrication
  - Orgasm
  - Satisfaction
  - Pain
- Women's Interagency HIV Study (WIHS) and ITG study
- Women with HIV reported greater sexual problems
  - Lower CD4 cell
  - If they reported not being in a relationship
  - Menopause
  - Depression
- Body Image and Higher incidence of lipoatrophy
Domestic violence

- One quarter of the women reported recent abuse

- Childhood sexual abuse was strongly associated with a lifetime history of domestic violence and high-risk behaviors
  - using drugs,
  - having more than 10 male sexual partners
  - having male partners at risk for HIV infection
  - exchanging sex for drugs, money, or shelter

- One of 4 women for whom HAART was indicated reported not using HAART
Sexually Transmitted Diseases in HIV-Infected Women

- STD can facilitate HIV transmission by increasing genital shedding of HIV.

- Detection and treatment of STDs are an important part of and HIV prevention strategy.

- **Routine screening for STDs:**
  - With a new HIV diagnosis
  - At each annual examination
  - With a new sexual partner
  - Following a condom malfunction
  - After unprotected intercourse or when there is a known exposure to STD
Sexually Transmitted Diseases in HIV-Infected Women

- **Gonorrhea/chlamydia**
  - Screen annually in sexually active women or woman with recent change in sexual partner or sexual practice, if partner has a history of STDs, or if the woman presents with signs or symptoms

- **Trichomonas vaginalis**

- **Syphilis**
  - Should be screened for annually and if neurologic symptoms occur

- **Herpes simplex virus**

- **Human papillomavirus**
  - Refer to cervical cancer screening
Conclusion

• Psychosocial aspects
• Effective treatment in the long term
• Menopause

• Co-morbidities and diseases of ageing
  • CV disease
  • BMD
  • Cancer
  • Renal function
  • Neurocognitive dysfunction