HIV and Neurological complications in Thailand

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Agenda

- Epidemiology of HIV in Thailand
- Epidemiology of HIV opportunistic infections in Thailand
- Antiretroviral therapy in Thailand
- Epidemiology of HIV neurological complications in Thailand
Epidemiology of HIV in Thailand

- First AIDS patient: 1984

Source: Division of Epidemiology, Thai Ministry of Public Health
Estimated number of new HIV infections in Thailand by year and changing mode of transmission

HIV epidemic in Thailand

- 140,000 new cases/year (1991) to 21,000 new cases/year (2002)
- Mode of transmission: SW 90% (1990) to spouse 50%, IVDU 20%, SW 15% (2002)
- HIV prevention is ineffective in IVDU, homosexual men
HIV/AIDS Situation in Thailand  
(Sep 1984-30 Apr 2005)

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reported cases</td>
<td>359,704</td>
<td>86,443</td>
</tr>
<tr>
<td>AIDS</td>
<td>268,706</td>
<td>75,263</td>
</tr>
<tr>
<td>Symptomatic</td>
<td>90,998</td>
<td>11,180</td>
</tr>
</tbody>
</table>

Source: Division of AIDS, TB, and STD, Thai Ministry of Public Health
Number of AIDS patients/Deaths in Thailand

Source: Division of Epidemiology, Thai Ministry of Public Health
AIDS patients in Thailand (Sep 1984-Apr 2005)

Source: Division of Epidemiology, Thai Ministry of Public Health
Mode of transmission of HIV in Thailand (%)

- Heterosexual: 83.75%
- Unknown: 7.32%
- IVDU: 4.14%
- MTCT: 0.03%
- Blood Tx: 0.02%
- Others: 4.72%

Source: Division of Epidemiology, Thai Ministry of Public Health
AIDS cases according to region in Thailand, 1994-1998

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Opportunistic Infections
(Sep 1984 to Apr 2005)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Opportunistic Infection</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tuberculosis</td>
<td>79559</td>
<td>29.61</td>
</tr>
<tr>
<td>2</td>
<td>PCP</td>
<td>57235</td>
<td>21.3</td>
</tr>
<tr>
<td>3</td>
<td>Cryptococciosis</td>
<td>43339</td>
<td>16.14</td>
</tr>
<tr>
<td>4</td>
<td>Invasive candidiasis</td>
<td>14202</td>
<td>5.29</td>
</tr>
<tr>
<td>5</td>
<td>Recurrent pneumonia</td>
<td>10070</td>
<td>3.75</td>
</tr>
<tr>
<td>6</td>
<td>Cerebral toxoplasmosis</td>
<td>8006</td>
<td>2.98</td>
</tr>
<tr>
<td>7</td>
<td>Penicilliosis marneffei</td>
<td>6709</td>
<td>2.5</td>
</tr>
<tr>
<td>8</td>
<td>AIDS dementia complex</td>
<td>4155</td>
<td>1.55</td>
</tr>
<tr>
<td>9</td>
<td>MAC</td>
<td>2597</td>
<td>0.97</td>
</tr>
<tr>
<td>10</td>
<td>Chronic herpes simplex infection</td>
<td>2448</td>
<td>0.91</td>
</tr>
</tbody>
</table>

Total = 268,706 AIDS patients
## Common opportunistic infections according to region in Thailand, 1994-1998

<table>
<thead>
<tr>
<th>AIDS indicator illness</th>
<th>No. (%) of patients, by region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bangkok</td>
</tr>
<tr>
<td>Wasting syndrome</td>
<td>1874 (19.0)</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>4250 (43.0)</td>
</tr>
<tr>
<td><em>Pneumocystis carinii</em> pneumonia</td>
<td>1578 (16.0)</td>
</tr>
<tr>
<td>Cryptococcosis</td>
<td>1571 (15.9)</td>
</tr>
<tr>
<td>Esophageal candidiasis</td>
<td>881 (8.9)</td>
</tr>
<tr>
<td>Pneumonia, bacteria</td>
<td>444 (4.5)</td>
</tr>
<tr>
<td><em>Penicillium marneffei</em> infection</td>
<td>44 (0.4)</td>
</tr>
<tr>
<td>Cerebral toxoplasmosis</td>
<td>185 (1.9)</td>
</tr>
<tr>
<td>HIV encephalopathy</td>
<td>162 (1.6)</td>
</tr>
<tr>
<td>Cryptosporidiosis</td>
<td>115 (1.2)</td>
</tr>
<tr>
<td>Herpes simplex</td>
<td>98 (1.0)</td>
</tr>
<tr>
<td><em>Mycobacterium</em> infection (other)</td>
<td>83 (0.8)</td>
</tr>
<tr>
<td>Isosporiasis</td>
<td>57 (0.6)</td>
</tr>
<tr>
<td>Cytomegalovirus retinitis</td>
<td>71 (0.7)</td>
</tr>
<tr>
<td><em>Salmonella</em> septicemia</td>
<td>93 (0.9)</td>
</tr>
<tr>
<td>Histoplasmosis</td>
<td>40 (0.4)</td>
</tr>
<tr>
<td>Kaposi’s sarcoma</td>
<td>23 (0.2)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>9874</td>
</tr>
</tbody>
</table>

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- Antiretroviral therapy in Thailand
- Epidemiology of HIV neurological complications in Thailand
Antiretroviral therapy coverage for adults, end 2003

Source: UNAIDS/WHO, 2004
Antiretroviral therapy in Thailand

- At least 200000 AIDS patients require ART
- Free-of-charge antiretroviral program in Thailand
  - 1992-1997, zidovudine monotherapy
  - 1997-1999, dual nucleoside therapy (ZDV+ddI/ddC)
  - 1999-2002, a pilot phase of triple regimen using original ARVs
Antiretroviral therapy in Thailand

- In 2002, 2500 AIDS patients (1.25%) were treated with HAART
- ARV price reduction in 2003:
  - Original drugs $300+/month
  - GPO-Vir® (d4T/3TC/NVP) $30/month
- >5 times increase in number of patients receiving ART (>15000 cases or 7.5% in 2003)
Antiretroviral therapy in Thailand

- National policy: provide free ART (GPO-Vir®) to a total of 50000 cases in 2004 (25% coverage)
- Until March 2005
  - 849 hospitals
  - Total 62972 patients enrolled
  - 52593 patients currently receiving ART
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Neurological complications in AIDS patients

- A retrospective study at CMU Hospital from Sep 2001 to Aug 2002
- Review of 155 AIDS patients
  - 118 male and 37 female
  - Mean age 34.5±5.4 years, range 16-60 years
  - 1.9% receiving antiretroviral drugs

Neurological complications in AIDS patients

- Review of 155 AIDS patients
  - 76 (49.0%) admitted with non-neurological S/S
  - 35 (22.6%) admitted with neurological S/S
  - 44 (28.4%) admitted with both neurological and non-neurological S/S

- Incidence of neurological complications = 50.3 per 100 person-years
  - CNS = 46.5 per 100 person-years
  - PNS = 3.8 per 100 person-years

Neurological complications in AIDS patients

<table>
<thead>
<tr>
<th>Condition</th>
<th>Incidence (/100 person-years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cryptococcal meningitis</td>
<td>18.0</td>
</tr>
<tr>
<td>Cerebral toxoplasmosis</td>
<td>14.8</td>
</tr>
<tr>
<td>CMV infection</td>
<td>7.0</td>
</tr>
<tr>
<td>Tuberculous meningitis</td>
<td>1.9</td>
</tr>
<tr>
<td>Seizure disorder</td>
<td>1.9</td>
</tr>
<tr>
<td>PML</td>
<td>1.2</td>
</tr>
<tr>
<td>Nocardial brain abscess</td>
<td>0.6</td>
</tr>
<tr>
<td>Peripheral neuropathy</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Decrease in incidence (Poisson regression analysis: $P<0.0001$)
Increase in incidence (Poisson regression analysis: P<0.0001)
Cryptococcosis in Thailand

- High incidence in all regions of the country
- Third most common presenting OI in AIDS patients (prevalence 10-25%)
- Most common neurological complication
- Decreasing in incidence in recent years
  - Primary prophylaxis with fluconazole
  - Primary prophylaxis with itraconazole (northern)
  - Access to ART
Cryptococcosis at CMU Hospital

Data from the Central Mycology Lab, CMU Hospital
Summary

- High incidence of neurological complications in AIDS patients in Thailand
- Opportunistic infections are leading causes of neurological complications
- Cryptococcal meningitis is most common, followed by cerebral toxoplasmosis
- A trend of decreasing incidence of opportunistic infections in HAART era
Thank you for your attention