MECHANISMS OF HUMAN DISEASE
AND
PHARMACOLOGY & THERAPEUTICS

CASE-BASED SMALL GROUP DISCUSSION

Session 13
MHD II

April 15, 2019

STUDENT COPY

Required Reading:
Clinical Aspects of Human Immunodeficiency Viral Infection:
Monograph prepared by Nina Clark, MD
Case 1
Cc: I am HIV positive and I don’t know what to do now

A 43 year-old state representative presents to your office because his HIV test was positive two months previously. As a result of the test he revealed to his wife that he has had extra-marital affairs and sex with men. He did not reveal his HIV status to her. There has been tension in their marriage since then. Two days ago his wife requested that her husband move out of the home they share with their 5 year old daughter and three year old son.

The patient denied fever, any pain, skin problems, diarrhea, weakness, cough or shortness of breath. He admitted to anorexia, a 12 pound weight loss over two months and insomnia.

Past medical history:
Positive PPD since age 25 (treated)
Oral HSV with about 3 recurrences per year

He is on no medications and has no known drug allergies.

Physical examination. He is fatigued appearing but in no physical distress.
T 36.9°C, P 84/min, R 18/min BP 122/80. Wt 87.3 Kg; height 71 inches

Examination was normal other than a palpable soft, mobile 1 cm. right anterior cervical lymph node and a 0.5 cm left posterior cervical lymph node.

Laboratory evaluation 2 months ago (brought by patient)

<table>
<thead>
<tr>
<th>Component Results</th>
<th>Component</th>
<th>Value</th>
<th>Ref Range &amp; Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV 1 ANTIBODIES</td>
<td>POSITIVE (A)</td>
<td>NN</td>
<td>Final</td>
</tr>
</tbody>
</table>
| Comment: Reference Range: Negative (NN)
ORDERED BY LAB
TEST PERFORMED BY QUEST DIAGNOSTICS, 1355 MITTEL BLVD, WOOD DALE, IL 60191 |
| HIV 2 ANTIBODIES   | NEGATIVE | NN | Final |
| Comment: Reference Range: Negative (NN)
ORDERED BY LAB
TEST PERFORMED BY QUEST DIAGNOSTICS, 1355 MITTEL BLVD, WOOD DALE, IL 60191 |
Educational Objectives

1. Interpret the lab result and the associated rationale.

2. What test(s) would you order to assess his immune function and level of viremia?

3. Are all his symptoms likely attributable to HIV infection?

4. What will you counsel him regarding his wife and other sexual partners?

He returns to clinic two weeks later. He misses his children. He still has insomnia. His appetite is improved; his weight is unchanged. He has an appointment with a psychologist on the following day. Both of you review laboratory results.

HIV 1 RNA PCR Quant  Result: POSITIVE FOR HIV-1: 8,400 COPIES/ML

%CD3+/CD4+ Th CELLS  29 L [30-60]
#Cd3+/Cd4+ Th Cells  399L [415-1852] cmm

Complete Metabolic Panel

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium</td>
<td>136 [136-146] mm/l</td>
</tr>
<tr>
<td>Potassium</td>
<td>4.2 [3.3-5.1] mm/l</td>
</tr>
<tr>
<td>Chloride</td>
<td>104 [98-108] mm/l</td>
</tr>
<tr>
<td>CO2</td>
<td>28 [20-32] mm/l</td>
</tr>
<tr>
<td>Bun</td>
<td>14 [7-22] mg/dl</td>
</tr>
<tr>
<td>Creatinine</td>
<td>0.9 [0.7-1.5] mg/dl</td>
</tr>
<tr>
<td>Glucose</td>
<td>102 [70-100] mg/dl</td>
</tr>
<tr>
<td>Albumin</td>
<td>4.0 [3.6-5.0] gm/dl</td>
</tr>
<tr>
<td>Protein, Total</td>
<td>8.0 [6.5-8.3] gm/dl</td>
</tr>
<tr>
<td>Calcium</td>
<td>9.4 [8.9-10.3] mg/dl</td>
</tr>
<tr>
<td>Alkaline Phosphatase</td>
<td>91 [30-110] iu/l</td>
</tr>
</tbody>
</table>
### Laboratory Tests

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>Reference Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALT (SGPT)</td>
<td>33</td>
<td>[10-40] iu/l</td>
</tr>
<tr>
<td>AST (SGOT)</td>
<td>39</td>
<td>[5-40] iu/l</td>
</tr>
<tr>
<td>Bilirubin, Total</td>
<td>1.2</td>
<td>[0.2-1.4] mg/dl</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CBC</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>WBC</td>
<td>4.2</td>
<td>[4.0-10.0] k/ul</td>
</tr>
<tr>
<td>RBC</td>
<td>5.01</td>
<td>[4.50-6.00] m/ul</td>
</tr>
<tr>
<td>Hgb</td>
<td>15.3</td>
<td>[14.0-17.0] gm/dl</td>
</tr>
<tr>
<td>Hct</td>
<td>45.9</td>
<td>[40.0-54.0] %</td>
</tr>
<tr>
<td>MCV</td>
<td>93.9</td>
<td>[85-95] fl</td>
</tr>
<tr>
<td>MCH</td>
<td>31.3</td>
<td>[28.0-32.0] pg</td>
</tr>
<tr>
<td>MCHC</td>
<td>35.2</td>
<td>[32.0-36.0] gm/dl</td>
</tr>
<tr>
<td>RDW</td>
<td>13.8</td>
<td>[11.0-15.0] %</td>
</tr>
<tr>
<td>Platelet Count</td>
<td>245</td>
<td>[150-400] k/ul</td>
</tr>
</tbody>
</table>

**RPR**
- **RPR Qual**: NON REACTIVE
- **Reference Range**: NON REACTIVE

**Toxoplasma IgG Ab**
- **Interpretation**: POSITIVE
- **Reference Range**: NEGATIVE
- **Result**: 18 iu/ml

**Anti-HAV IgG**
- **Interpretation**: NEGATIVE
- **Reference Range**: NEGATIVE

**Anti-HBs**
- **Interpretation**: POSITIVE
- **Reference Range**: NEGATIVE
- **Result**: 28 iu/ml

**Anti-HCV IgG**
- **Interpretation**: NEGATIVE
- **Reference Range**: NEGATIVE

PPD placed on his left forearm is interpreted as negative.

5. Explain the significance of the laboratory tests. Is there action that you would take now based on the results?

6. What is the goal of antiretroviral therapy? Is antiretroviral therapy recommended for this patient at this point?
7. If treatment is recommended, what drug combination(s) should be offered?

8. The patient has seen commercials on “Truvada®” and would like your opinion on its use.
Case 2
A 26-year-old woman presents for prenatal counseling. She and her male husband would like to conceive a child. She was diagnosed with HIV 3 years ago. Her husband is not infected with HIV. They are in a monogamous relationship. She is compliant with her prescribed antiretroviral regimen. She has no other known medical problems and takes no over the counter or prescription medications. She has no history of other sexually transmitted disease. She drinks alcohol socially. She does not smoke cigarettes. She does not use illicit drugs. Her physical exam is normal. Her current CD4 count and HIV viral load are pending.

Educational Objectives

1. How is HIV transmitted from mother to infant?

2. What factors would you hypothesize influence the risk of HIV transmission from mother to the infant?

3. Is prevention of HIV from mother to infant possible? If so, describe how.

4. What are the long-term consequences of HIV infection in an infant?

5. Unknown – students will be provided the question during the small group session
Case 3
A 21-year college cheerleader who got drunk at a frat party and thinks she had unprotected sex
An 18-year old quarterback of his high school football team who got diagnosed with gonorrhea
A 24-year old man in the military who had sex with prostitutes
A 25-year old man who has sex with men who is earning his PhD in quantum physics
A 30-year old woman married her high-school sweetheart who is 2 months pregnant with their first child
A 30-year old woman married her high-school sweetheart who is 2 months pregnant with their first child. She speaks only Polish.
A 31-year old homeless woman who is addicted to IV heroin
A 31-year old man with bipolar disorder who is addicted to IV heroin
A 34-year old woman sexually active woman who presents with a 10-day history of fever to 38°C, nontender axillary cervical and occipital, lymphadenopathy, sore throat, generalized maculopapular rash, myalgias, headache and painful mucocutaneous ulceration
A 45-year old prostitute
A 45-year old incarcerated for theft with a recent history of IV drug abuse
A 52-year old man who lives in rural Illinois who has multiple female sexual partners
A 64-year old retired construction worker whose girlfriend was diagnosed with chlamydia

Questions will be provided during the small group session

Cases 4, 5, 6 – Unknowns – case data will be provided during the small group session