HIV and COVID-19
3 Clinical Cases

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Southern African HIV Clinicians Society CME Meeting 16th July 2020
Case 1

- 51 yr old female with a good baseline independent ADLs
  - Domestic worker

- **HIV positive on ART for past 10 years**
  - FDC- Tenofovir/Emtricitabine/Efavirenz
  - VL- LDL (13-06-19), **CD4+ 227** & **VL-LDL** (15-05-2020)

- **Presenting symptoms:** 7 days
  - Cough
  - Shortness of breath
  - Fever

- **On presentation:** sats 76% RA → 98% on FMO₂ 60%
  - T 36.6 °C, **RR 40**, BP 108/56 mmHg, P 78
  - Bilateral fine crepitation
  - Rest of physical examination normal

- **Severe CAP Pneumonia with hypoxia**

- Started on Ceftriaxone, Azithromycin & Oseltamivir
<table>
<thead>
<tr>
<th>WCC</th>
<th>7.67 X10⁹ /L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neut</td>
<td>6.33 X10⁹ /L</td>
</tr>
<tr>
<td>Lymph</td>
<td>0.95 x10⁹ /L</td>
</tr>
<tr>
<td>Hb</td>
<td>10.5 g/dL</td>
</tr>
<tr>
<td>PLT</td>
<td>297 X10⁹ /L</td>
</tr>
<tr>
<td>Creatinine</td>
<td>65 umol/L</td>
</tr>
<tr>
<td>CRP</td>
<td>306</td>
</tr>
<tr>
<td>D-Dimer</td>
<td>0.35</td>
</tr>
</tbody>
</table>

**SARS-CoV-2 PCR Positive**

- Antibiotics & Oseltamivir stopped
- **Clexane 80 mg S/C 12 hourly**
- FMO₂ 60%

### Blood gas on FMO₂ 60%

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.42</td>
</tr>
<tr>
<td>pCO₂</td>
<td>4.82 KPa</td>
</tr>
<tr>
<td>pO₂</td>
<td>12.6 KPa</td>
</tr>
<tr>
<td>sO₂</td>
<td>97.2 %</td>
</tr>
<tr>
<td>Lac</td>
<td>0.8 mmol/L</td>
</tr>
</tbody>
</table>

- **Duration of hospitalization 9 days with no COVID-19 related complications**
- **Outcome discharged from Hospital**
Case 2

28 yr old female previously well no known medical problems

- **Presenting symptoms:** 14 days
  - Fever
  - Body aches
  - Shortness of breath

- **At district hospital**
  - T 39°C, RR 46, sats 70% on room air, P 100
  - On FMO₂ 60% → sats 97%
  - CXR → **bilateral ground glass opacities**
  - Ceftriaxone 1g IVI & Azithromycin 500mg

- Transferred to GSH for further management

- **On arrival**
  - T 36.4 °C, RR 36, P 98 BP 101/67 mmHg, **sats 98% FMO₂ 60%**, glucose 6.4 mmol/L, Hb 9.6 g/dl
<table>
<thead>
<tr>
<th></th>
<th>Day 1</th>
<th>Day 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WCC</strong></td>
<td>10.38 X10⁹ /L</td>
<td></td>
</tr>
<tr>
<td><strong>Hb</strong></td>
<td>10.5 g/dL</td>
<td></td>
</tr>
<tr>
<td><strong>MCV</strong></td>
<td>89 fl</td>
<td></td>
</tr>
<tr>
<td><strong>PLT</strong></td>
<td>340 X10⁹ /L</td>
<td></td>
</tr>
<tr>
<td><strong>Potassium</strong></td>
<td>3.1 mmol/L</td>
<td>3.3 mmol/L</td>
</tr>
<tr>
<td><strong>creatinine</strong></td>
<td>112 umol/L</td>
<td>74 umol/L</td>
</tr>
<tr>
<td><strong>CRP</strong></td>
<td>93</td>
<td></td>
</tr>
<tr>
<td><strong>HIV ELISA</strong></td>
<td>Positive</td>
<td></td>
</tr>
<tr>
<td><strong>CD4+</strong></td>
<td>4 cells/uL</td>
<td></td>
</tr>
<tr>
<td><strong>Cryptococcal antigen (LFA)</strong></td>
<td>Negative</td>
<td></td>
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</tbody>
</table>

- Antibiotics stopped
- **PJP** is suspected:
  - High dose **cotrimoxazole** (Bactrim) started with **prednisone 40mg BD**
  - **FMO₂ 60%**
  - **SARS-CoV-2 PCR Positive**

- Clexane 60mg S/C 12 hourly & prednisone 40mg
Day 4 Hospital Admission

Day 18 symptoms

• Resp distress → **RR 48, sats 78% FMO₂ 60%, HR 134**
• Placed on **HFNCO** (high flow nasal cannula oxygen)
  • FiO₂ 90% FR: 55 L/min
  • SPO₂ 94% HR 115

<table>
<thead>
<tr>
<th>Blood gas on HFNCO</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.54</td>
</tr>
<tr>
<td>pCO₂</td>
<td>5.35 KPa</td>
</tr>
<tr>
<td>pO₂</td>
<td>7.88 KPa</td>
</tr>
<tr>
<td>sO₂</td>
<td>96.5 %</td>
</tr>
<tr>
<td>Lac</td>
<td>1.8 mmol/L</td>
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</tbody>
</table>

• **Duration on HFNCO 12 days**
• To start ART once off HFNCO & clinically stable
Case 3

- 53 yr old male
- **Medical history:**
  - HIV +ve on ART- ABC/3TC/EFV, **VL-LDL** (7/2019)
  - Hypertension
  - Chronic Kidney Disease- baseline eGFR 20
  - Previous TB
  - Multiple Myeloma / POEMS with sensory peripheral neuropathy
    - Not on chemotherapy
- **Presenting symptoms:** 3 days
  - Myalgia
  - Diarrhea
  - No cough, no fever
- **On presentation:** T **39.5 °C**, BP 127/70 mmHg, P 131, RR 28, sats 98% RA
<table>
<thead>
<tr>
<th>WCC</th>
<th>10.28 X10^9 /L</th>
<th>Blood gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neut</td>
<td>7.85 X10^9 /L</td>
<td>pH</td>
</tr>
<tr>
<td>Lymph</td>
<td>1.88 x10^9 /L</td>
<td>pCO₂</td>
</tr>
<tr>
<td>Hb</td>
<td>9.9 g/dL</td>
<td>pO₂</td>
</tr>
<tr>
<td>PLT</td>
<td>256 X10^9 /L</td>
<td>Lac</td>
</tr>
<tr>
<td>Potassium</td>
<td>6.5 mmol/L</td>
<td></td>
</tr>
<tr>
<td>Creatinine</td>
<td>1126 umol/L</td>
<td></td>
</tr>
<tr>
<td>CRP</td>
<td>223</td>
<td></td>
</tr>
<tr>
<td>Calcium</td>
<td>1.63 mmol/L</td>
<td></td>
</tr>
</tbody>
</table>

- Started on antibiotics- Ceftriaxone & Azithromycin

**SARS-CoV-2 PCR Positive**

**HIV +ve on ART with suppressed VL with Multiple Myeloma and Chronic Kidney Disease**

**Now with COVID-19 with acute on chronic Kidney failure**

- Not a candidate for chemotherapy & dialysis
- Palliative care therapy started & family counselled

**Outcome- died in hospital**
Clinical symptoms of COVID-19

- Fever
- Dry Cough
- Shortness of breath
- Sore throat
- Muscular or body aches
- Congestion or runny nose
- Nausea or vomiting
- Headache
- Loss of taste or smell
- Diarrhea

Management of laboratory confirmed or clinically diagnosed case

1. Oxygen therapy, escalating according to need
   1. Nasal cannulae (2-6 L/min)
   2. Face mask 40% (6-8 L/min)
   3. Reservoir mask (flow to fill reservoir bag)
   4. High flow nasal oxygen
   5. Refer to ICU for intubation and ventilation
2. Awake proning if sats < 90%
3. Dexamethasone 6mg IVI or Prednisone 40mg PO daily
4. Enoxaparin provided no contra-indication
   1. 40mg SC daily for prophylaxis
   2. If requiring high intensity oxygen or D-dimer > 1.5 then 1mg/kg 12 hourly (weigh patient or accurately estimate weight)
5. Lansoprazole 30mg daily or Omeprazole 20mg daily
6. Paracetamol 1 g 6 hourly. Escalate analgesia if needed.
7. **Appropriate management of co-morbidities** (especially diabetes: SC insulin if hyperglycaemic; IVI insulin infusion and fluids if DKA)
8. No routine antibiotics
9. For some patients institution of palliative care appropriate

**Investigations**

1. NP or mid-turbinate swab for SARS-CoV-2 (if high suspicion & swab neg then sputum)
2. Blood glucose
3. ABG (if sats < 95%)
4. CEU
5. FBC/diff
6. D-dimer
7. HIV
8. HbA1C
9. If ischaemic chest pain then TropT and ECG

Clinically-diagnosed cases are patients with characteristic symptoms, positive contact and/or characteristic CXR with bilateral ground glass infiltrates with prominent peripheral distribution

Version: 15 July 2020
Conclusion

• Presented 3 cases of individuals with HIV infection with COVID-19 infection
  • Variable clinical presentations
  • Successful use of HFNC in HIV-infected individual with possible co-infection with an opportunistic infection.

• Evolving treatment of SARS-CoV-2 (COVID-19) as more data from clinical trials
  • The use of steroids
  • High dose clexane
  • HFNCO

• Individuals with a new diagnosis of HIV-infection need to be started on ART once over the acute infection of COVID-19.