PAKISTAN: PREVENTION & CONTROL OF VIRAL HEPATITIS

Dr. Huma Qureshi
Executive Director
Pakistan Medical Research Council (PMRC)
Pakistan, National Lead Viral Hepatitis Control
Background

- Population: 179 Million
  - # 6 in population worldwide

- 4 Provinces:
  - Balochistan {Quetta}; Khyber Pakhtunkhwa (KPK) {Peshawar}; Punjab {Lahore}; Sindh {Karachi}

- Healthcare:
  - Highest rate of therapeutic injections in the world:
    - up to 13 injections/person/year
  - 70% pop visits private sector for health issues
  - 60-70% expenditure is out of pocket
Pakistan: a cirrhotic state?

Routine reuse of syringes in Pakistan’s back-street health centres has caused a surge in blood-borne infections such as hepatitis B and C, which experts have dubbed “the AIDS of Pakistan”. But to solve this problem, Pakistan must first wean itself off injections. Khabir Ahmad reports.

Hepatitis in Pakistan

• Prior to 2005, there were few studies & little data

• Prime Minister’s Program for Hepatitis Prevention & Control: 2005-2010 and chief minister program for hepatitis 2010-2015
  • Stimulated by The Lancet article, 2004 helped to bring the hepatitis issue to the forefront

• 2008: PMRC conducted a National Serosurvey –
  • One of few lower/middle income countries with national data

• 2009: CDC/DVH collaboration began with sentinel surveillance project

• 2011: Devolution of MOH
  • Provinces assumed responsibility of hepatitis prevention & control
  • PM’s Program became the Chief Minister’s programs in the Provinces

• 2013-14:
  • Technical Advisory Group (TAG) formed (4 meetings to date)
  • Sindh Hepatitis Program evaluation
  • Infection control training in 25 high risk districts (WHO & PMRC)
  • Introduction of Sofosbuvir
Pakistan 2nd largest burden of HCV in the world

Viral Hepatitis

- Large burden of Viral Hepatitis
  - Chronic HCV prevalence: 5% (8 million)*
    - HCV: it is estimated that there are 240 thousand new infections per year**
  - Chronic HBV prevalence: 2.5% (4 million)*
  - HAV & HEV are endemic***
  - Genotype 3 predominant****
  - Liver disease: Leading cause of mortality

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HBV and HCV Burden

Percent prevalence of HCV and HBV by province in Pakistan.*

<table>
<thead>
<tr>
<th>Province</th>
<th>Total Pop</th>
<th>HBV</th>
<th>HCV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sindh</td>
<td>42.4 M</td>
<td>1.1 M</td>
<td>2.1 M</td>
</tr>
<tr>
<td>Punjab</td>
<td>101 M</td>
<td>2.4 M</td>
<td>6.8 M</td>
</tr>
<tr>
<td>KPK</td>
<td>18 M</td>
<td>234,000</td>
<td>198,000</td>
</tr>
<tr>
<td>Balochistan</td>
<td>6.5 M</td>
<td>279,000</td>
<td>97,500</td>
</tr>
<tr>
<td>Pakistan</td>
<td>179 M</td>
<td>4.5 M</td>
<td>8.8 M</td>
</tr>
</tbody>
</table>

HCC with HBV & HCV, Aga Khan University, 1988 - 2008
HCV Infection Burden by Age Cohort, Pakistan, 2014

- Prevalence distribution by age, 2013*
- Median age = 41 years

*Homie Razavi, APASL STC, Karachi, October 2014
Estimated HCV Annual Incidence, Pakistan, 1950 - 2015

- Assuming that the total number of infections is remaining constant, it is estimated that there are 240 thousand NEW infections/year*

*Homie Razavi, APASL STC, Karachi, October 2014.
Hepatitis Sentinel Surveillance, Pakistan

- 2009: launched in 5 public sector tertiary-care hospitals
  - Lahore, Peshwar, Karachi, Quetta, & Islamabad
- A comprehensive case reporting form used collecting information on
  - Demographics, symptoms, and risk factor exposures in the 6 months prior to infection
- ELISA test kits are used to test serologic specimens
  - Hepatitis A, B, C, E
- Virologic testing (PCR)
  - Not yet available
  - In process of introducing & testing backlog

*Funding supported by CDC & USAID*
# Acute Viral Hepatitis, Sentinel Surveillance, Pakistan, 2010-2011

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute hepatitis A</td>
<td>141</td>
<td>19.8%</td>
</tr>
<tr>
<td>Newly reported hepatitis B</td>
<td>77</td>
<td>10.8%</td>
</tr>
<tr>
<td>Newly reported hepatitis C</td>
<td>379</td>
<td>53.2%</td>
</tr>
<tr>
<td>Acute hepatitis E</td>
<td>87</td>
<td>12.2%</td>
</tr>
<tr>
<td>Hepatitis B &amp; C co-infection</td>
<td>28</td>
<td>3.9%</td>
</tr>
<tr>
<td>Total</td>
<td>712</td>
<td>100%</td>
</tr>
</tbody>
</table>

## Risk Factors for Acute Hepatitis, Pakistan, 2010-2011

- Distribution of risk factors 6 weeks prior to infection

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Newly reported Hepatitis B</th>
<th>Newly reported Hepatitis C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact with jaundiced person</td>
<td>14.3%</td>
<td>23.7%</td>
</tr>
<tr>
<td>Blood transfusion</td>
<td>2.6%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Surgery</td>
<td>14.3%</td>
<td>7.7%</td>
</tr>
<tr>
<td>Visit to dentist</td>
<td>24.7%</td>
<td>18.6%</td>
</tr>
<tr>
<td>Therapeutic injections</td>
<td>62.3%</td>
<td>44.1%</td>
</tr>
<tr>
<td>IV infusions</td>
<td>40.3%</td>
<td>26.9%</td>
</tr>
<tr>
<td>Injection drug use</td>
<td>0%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Skin piercing</td>
<td>18.2%</td>
<td>6.1%</td>
</tr>
</tbody>
</table>

Viral Hepatitis in Balochistan

- Southwest, borders Afghanistan & Iran
- Program: Chief Minister’s Initiative for Hepatitis Free Balochistan (2011-2015)
- HBV Prevalence: 4.3% (highest among provinces)
- HCV Prevalence: 1.5%
- Large burden of HDV

Patients Awaiting Treatment in Balochistan*

<table>
<thead>
<tr>
<th>HBV Patients</th>
<th>HCV Patients</th>
<th>HBV/HDV Co-infected Patients</th>
<th>Non-responders</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,119</td>
<td>3,671</td>
<td>1,613</td>
<td>1,893</td>
</tr>
</tbody>
</table>

*Dr. Samiullah Kakar presentation: TAG meeting October 2014
Photograph: www.pakistan.gov.pk
Viral Hepatitis in Khyber Pakhtunkhwa (KPK)

- Formerly the North-West Frontier Province
- Program: Chief Minister’s Hepatitis Prevention & Control Program
- HBV Prevalence: 1.3%
- HCV Prevalence: 1.1%

*Registered HCV and HBV patients by year in KPK*

*TAG Meeting October 2014*

Photograph: www.pakistan.gov.pk
Viral Hepatitis in Sindh

- Capital: Karachi – largest city in the world by population
- Program: Chief Minister’s Hepatitis Prevention & Control Program (2011-2014)
  - HBV Prevalence: 2.5%
  - HCV Prevalence: 4.3%

Patients treated from 2009-2014 in Sindh*

<table>
<thead>
<tr>
<th>HBV Patients</th>
<th>HCV Patients</th>
<th>HBV/HDV Co-infected Patients</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>18,264</td>
<td>150,324</td>
<td>3,828</td>
<td>172,416</td>
</tr>
</tbody>
</table>

*Dr. Zahoor Baloch presentation: TAG meeting October 2014
Photograph: www.pakistan.gov.pk
Sindh Province Program Evaluation

- Sindh Province Chief Minister’s Hepatitis Prevention & Control Program was launched in 2009
  - Funded by Province with a large amount of resources
- PMRC & CDC conducted a site visit in 2013 – Sindh officials requested an official evaluation of their program
- Investigators: PMRC, AKU, & CDC
- Objective: to assess all elements of the program, evaluated program achievements, identify gaps and make recommendations

Areas of Evaluation:
- Vaccination – preventing acute infections
- Public awareness
- Policy change
- Health systems strengthening
- Addressing chronic infections – screening, laboratory capacity, care & treatment
HCV virologic testing (PCR) during care and treatment, Chief Minister’s Program, Sindh

*PMRC. Unpublished data: Sindh Program Evaluation 2014
DAA Access in Pakistan

- Genotype 3 predominant (% with reference)

- INF & PegINF have been mainstay of therapy in Pakistan
  - INF approximately $50 USD/treatment course
  - PegINF approximately $2,400 USD/treatment course

- Introduction of Sofosbuvir
  - It is registered by Pakistan Drug Regulatory Authority (DRAP)
  - Ferozons Pharmaceutical Company, named local distributor
  - Current Situation:
    - Use restricted pending its costing
    - Use only by “Named Patient Assistance Program” (each case individually reviewed)
    - 3200 applied → 1100 approved → 500 patients have begun treatment
Viral Hepatitis, Pakistan: Conclusions

• Large burden of viral hepatitis & many challenges
  • HCV and HBV > 12 million infected
  • Ongoing transmission
  • Devolution (coordination)
• Provinces are putting significant resources into prevention & control programs
  • Significant gaps exist in Provincial Hepatitis Control Programs
• Pakistan collaborators are moving the hepatitis control agenda forward
  • TAG, PMRC, AKU, Provinces, Public & Private Physicians
• CDC is providing technical & financial assistance
• More assistance is welcomed, as we have much to accomplish
Next Steps

Develop a National Strategic Plan of Action for the Prevention and Control of Viral Hepatitis

- Information, education, awareness
- Surveillance
- Vaccination
- Infection control is a priority
  - Injection safety
  - Blood safety
- Care and Treatment
  - Introduction of DAAs
  - Evaluate the introduction of Sofosbuvir
Challenges

• Security
  • However, we are a motivated group and we are capable of moving programs forward despite the security issues

• Fragmented Programs
  • TAG is helping to bring Provinces together with National Government to align programs

• Funding
Partners

- Technical Advisory Group (TAG), established in 2013
- PMRC
- Aga Khan University
- World Health Organization (WHO)
- Field Epidemiology & Laboratory Training Program (FELTP)
- Provincial Program Managers
- Pakistan Society of Gastroenterology
- CDC/DVH
- Private & public sector gastroenterologists
- NGOs & CSOs
THANK YOU
Extra Slides
Current Status: Transmission

• Unsafe injections: re-use of disposable medical tools (needles, syringes, IV lines & catheters, drips, & suction catheters)
  • Pakistan has the highest therapeutic use of injections worldwide: 13-14 injections/year*

Prevalence of HCV according to use of IM Injection in four Provinces**