Rheumatic Fever
and Rheumatic heart disease

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What is RF?

= Over-reaction of body’s immune system against its own tissue

• Group A Streptococcal throat infection
• Body produces antibodies against infection.
• Antibodies see heart and other tissue as “foreign” and attack and damage it.
Who gets RF?

• Mainly children 5 – 15 yrs old.

• “Third world” problem of Poverty:
  – Overcrowding
  – Poor nutrition
  – Limited access to primary healthcare

• Genetic predisposition
How do they present?

2 - 3 weeks after throat infection:

- Tiredness
- Poor appetite / weight loss
- Fever
- Painful joints
- Heart failure
Modified Jone’s Criteria

5 Major Criteria
- Carditis
- Polyarthritis
- Sydenham chorea
- Erythema marginatum
- Subcut. nodules

5 Minor Criteria
- ↑ PR interval on ECG
- Arthralgia
- ↑ CRP/ ESR/ WBC
- Fever
- History of previous RF

**DIAGNOSIS:**
1. Evidence of Strep infection
2. Two Major / one Major and two minor criteria
(Pan)Carditis

- Resting tachycardia
- Murmur

- ECG: PR prolonged, small complexes

- Heart failure
  - Oedema
  - Hepatomegaly
  - Dyspnoea
Polyarthritis

- Large joints.
- Red, swollen, painful.
- Child won’t move.
- “Flits” from joint to joint.
Sydenham Chorea

- Girls > boys
- Emotional
- “Clumsy”
- Fidgety
- Abnormal movements
- Hippus

Basal Ganglia
Erythema Marginatum

- Non-itchy rash
- Red margin
- Pale center
- “Swimming trunk” distribution
Subcutaneous nodules

• Rarely seen
• Painless, firm, mobile
• Extensor surfaces
Prevention and treatment of RF
Potential Preventive Measures for Rheumatic Fever and Rheumatic Heart Disease.

“Sore-throat treatment” refers to primary prophylaxis — that is, diagnosis and treatment of group A streptococcal pharyngitis.
“Primordial” Prevention

• Socio-economic upliftment:
  – Housing
  – Hygiene
  – Nutrition

• Access to healthcare
• Access to antibiotics
Primary Prevention

• Diagnose GAS pharyngitis

• Treat it!

• Treat it correctly!
Clinical diagnosis of GABS

Four Centor criteria:

1. Fever
2. Swollen, tender anterior cervical lymph nodes
3. Tonsillar exudate
4. Absence of cough
## Treatment of GAS Pharyngitis

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose</th>
<th>Freq</th>
<th>Route</th>
<th>Duration</th>
</tr>
</thead>
</table>
| **Benzathine Penicillin G** | < 27 kg: 600 000 IU  
> 27 kg: 1,2 mil IU | Stat | IMI   | Stat     |
| **Pen VK**           | < 27 kg: 250 mg  
> 27 kg: 500 mg | tds  | po    | 10 d     |
<p>| <strong>Amoxicillin</strong>      | 50 mg/kg (max 1g) | od   | po    | 10 d     |
| <strong>Cephalexin</strong>       | 25-100mg/kg/d                | tds  | po    | 10 d     |</p>
<table>
<thead>
<tr>
<th>Drug</th>
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<th>Freq</th>
<th>Route</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clindamycin</td>
<td>20 mg/kg/d (max 1.8 g/d)</td>
<td>tds</td>
<td>po</td>
<td>10 d</td>
</tr>
</tbody>
</table>
| Erythromycin    | < 27 kg: 125 mg
> 27 kg: 250 mg | qid  | po    | 10 d     |
| Azithromycin    | 12 mg/kg/d                    | od   | po    | 5 d      |
| Clarithromycin  | 15 mg/kg/d (max 250 mg bd)    | bd   | po    | 10 d     |
Potential Preventive Measures for Rheumatic Fever and Rheumatic Heart Disease.

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Treatment of Acute RF

- Antibiotics: Penicillin IM / po
- Bedrest to rest heart
- Anti-inflammatory drugs for arthritis
- Monitor disease activity
- Manage Chorea
- Treat CCF
## Treatment of Acute RF

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<th>Dose</th>
<th>Freq</th>
<th>Route</th>
<th>Duration</th>
</tr>
</thead>
</table>
| Benzathine Penicillin G | < 27 kg: 600 000 IU  
                          > 27 kg: 1,2 mil IU | Stat | IMI   | Stat     |
| Pen VK                | 50 – 100 mg/kg/day                  | qid  | po    | 10 d     |
| Clindamycin*          | 20 mg/kg/d (max 1.8 g/d)            | tds  | po    | 10 d     |
| Erythromycin*         | < 27 kg: 250 mg  
                          > 27 kg: 500 mg | qid  | po    | 10 d     |

* If allergic to Penicillin

AHA Guidelines *Circulation* March 24, 2009
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Follow-up after Acute RF

- Notify
- Prophylaxis plan

- Repeat ECHO after 3 – 6 mths
  - Valve damage is progressive
  - Often clinically silent!
    - Mocambique: 10 x more RHD diagnosed with Echo than clinically

## RF prophylaxis

<table>
<thead>
<tr>
<th>AGENT</th>
<th>DOSE</th>
<th>ROUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzathine Penicillin G</td>
<td>&lt; 27 kg: 600 000 IU</td>
<td>IMI</td>
</tr>
<tr>
<td></td>
<td>&gt; 27 kg: 1,2 mil IU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>every 3 – 4 weeks</td>
<td></td>
</tr>
<tr>
<td>Pen VK</td>
<td>250 mg bd</td>
<td>PO</td>
</tr>
<tr>
<td>Sulfadiazine*</td>
<td>&lt; 27 kg: 0,5 g daily</td>
<td>PO</td>
</tr>
<tr>
<td></td>
<td>&gt; 27 kg: 1,0 g daily</td>
<td></td>
</tr>
<tr>
<td>Erythromycin*</td>
<td>250 mg bd</td>
<td>PO</td>
</tr>
</tbody>
</table>

* If allergic to Penicillin

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## Duration of Secondary Prophylaxis

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CRHD with valve replacement / repair</td>
<td>Lifelong</td>
</tr>
<tr>
<td>2. RF with carditis and persistent valvular disease</td>
<td>≥ 10 yrs after last ARF episode or to age 40 yrs (or lifelong*)</td>
</tr>
<tr>
<td>3. RF with carditis, no residual valvular disease.</td>
<td>10 yrs or until age 21 yrs (whichever longer)</td>
</tr>
<tr>
<td>4. RF, no carditis, no valvular disease.</td>
<td>5 yrs or until age 21 yrs (whichever longer)</td>
</tr>
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</table>

* If in high contact occupation
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Tertiary Prevention

Management of chronic RHD:

• FOLLOW UP!
• Ensure COMPLIANCE!
• Watch for complications
• Surgery when needed
• ? Careers
• ? Pregnancy
Compliance

**Typical prescription:**
- Lasix 20mg tds po
- Slow K 1 tab bd po
- Digoxin 0.125mg daily po
- Capoten 12.5mg tds po
- Pen VK 250mg bd po
- Warfarin 5mg daily po
Could you do it?
Surgery

• Valve repair
  – Preferable
  – No Warfarin needed

• Valve replacement
  – Often inevitable
  – Need Warfarin lifelong!
  – Repeated every 15 – 20 yrs
Pregnancy?

- High risk for mother with heart disease
- Warfarin is teratogenic
• PREVENTABLE disease

• Children still die of this in SA
  or
  survive with debilitating heart disease

• SBAH: ± one valve replacement per month
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REMEMBER

Prevention is better than cure!
Bacterial

Come to the Health Center

Swollen uvula
Whitish spots
Red swollen tonsils
Throat redness
Gray furry tongue
The bold and the Bacterial

I don't care if he is penicillin, we're in love!