ACUTE RHEUMATIC FEVER

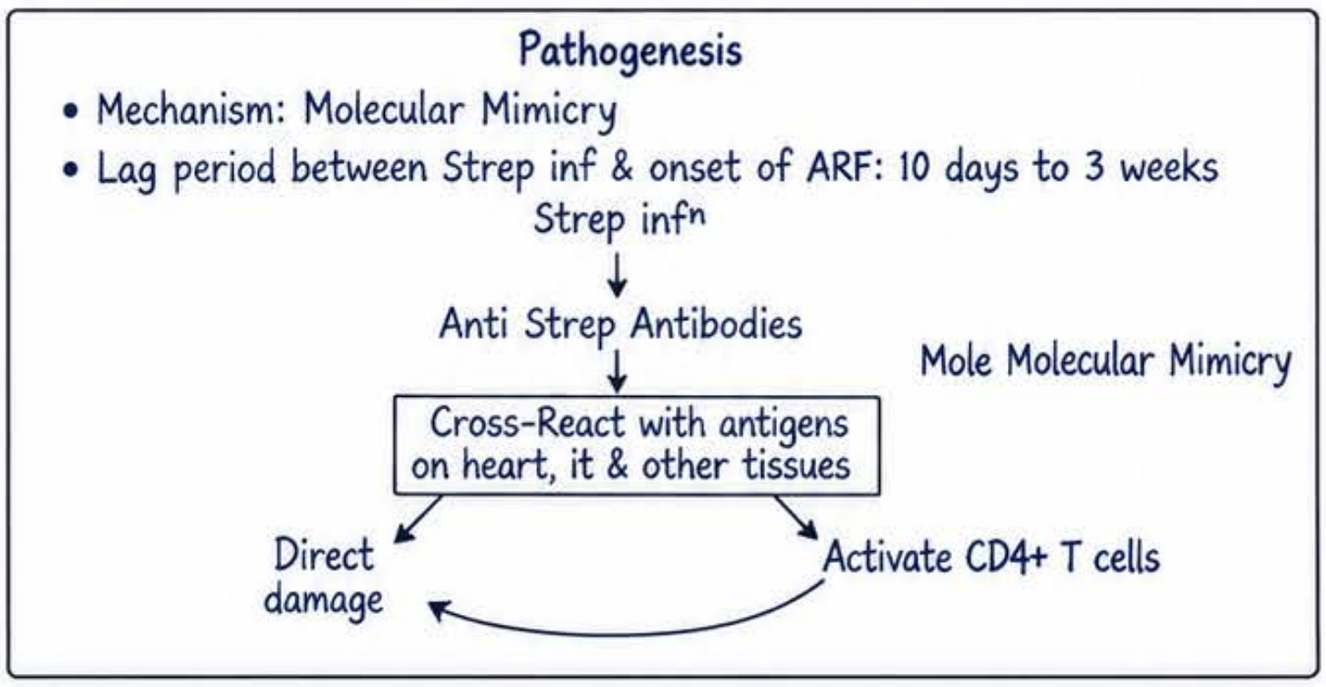
OVERVIEW AND ETIOLOGY

00:00:30

- **Acute Rheumatic Fever (ARF)** is an immune-mediated multisystem disorder.
  - It is triggered by a **Group A beta-hemolytic streptococcal (GAS)** infection.
- **Incidence**
  - The risk is 0.3% in the general population following a streptococcal sore throat.
  - Incidence can rise to 1% to 3% during epidemic outbreaks.
- **Epidemiology**
  - 90% of cases occur in children aged **5 to 15 years** (school age).
  - Males and females are affected equally.
- **Risk Factors**
  - Low socioeconomic status (**poverty**) and **overcrowding**.
  - Specific **GAS M-protein serotypes**: types 1, 3, 5, 6, 18, and 29.

PATHOGENESIS

00:03:21



- **Molecular Mimicry:**
  - The core mechanism involves the body forming anti-streptococcal antibodies after an infection.
  - In genetically predisposed individuals, these antibodies cross-react with antigens in normal human tissues, including the **heart, joints, skin,** and **brain**.
- **Timeline:**
  - The lag period between the initial streptococcal infection and the onset of **ARF** is typically **10 days to 3 weeks**.
- **Inflammatory Process:**
  - The cross-reaction causes direct tissue damage and activates **CD4+ T cells**, which drive further inflammation.

DIAGNOSIS: REVISED JONES CRITERIA (2015)

00:05:55

- **Prevalence-Based Categorization:**

Diagnosis- By Revised Jones Criteria 2015

• Divides the world population into two parts

Low-risk population	Moderate to high-risk population
Incidence of ARF ≤ 2/100000 school-going children, or	Incidence of ARF > 2/100000 school-going children, or
Prevalence of RHD < 1/1000 population per year	Prevalence of RHD > 1/1000 population per year

DocTutorials
Recorded Live Classes
Shorter Duration. Smarter FMGE Preparation.
Watch Now →
79951 11755 70976 34567 www.doctutorials.com

Low risk population	Medium to high-risk population
1. Carditis 2. Arthritis -Polyarthritis 3. Chorea 4. Erythema marginatum 5. Subcutaneous nodules	1. Carditis 2. Arthritis -Polyarthritis (or) Monoarthritic (or) polyarthralgia 3. Chorea 4. Erythema marginatum 5. Subcutaneous nodules

Low risk population	Medium to high-risk population
1. Polyarthralgia 2. Fever (≥38.5°C) 3. ESR≥60mm/Hr (or) CRP ≥ 3 mg/dL 4. Prolonged P-R interval on ECG	1. Monoarthralgia 2. Fever (≥38°C) 3. ESR≥30mm/Hr (or) CRP ≥ 3mg/dL 4. Prolonged P-R interval on ECG

- The 2015 **American Heart Association (AHA)** guidelines categorize criteria based on regional disease prevalence:
  - **Low-Risk Population** (e.g., USA):
    - **ARF** incidence </= 2 per 100,000 school children, or
    - **Rheumatic Heart Disease (RHD)** prevalence </= 1 per 1,000.
  - **Moderate to High-Risk Population** (e.g., India):
    - **ARF** incidence > 2 per 100,000, or
    - **RHD** prevalence > 1 per 1,000.

- **Essential Criteria (Must be present):**
  - Evidence of a recent streptococcal infection: Raised **Anti-streptolysin O (ASO)** titer, positive throat culture, or recent **scarlet fever**.
- **Major criteria:**
  - **Arthritis:**
    - Low risk: **Migratory Polyarthritis.**
    - Moderate/High risk: **Monoarthritis** or **Polyarthritis** or **Polyarthralgia.**
  - **Carditis**: Clinical or subclinical (detected by **Echocardiography**).
  - **Chorea (Sydenham's).**
  - **Erythema Marginatum.**
  - **Subcutaneous Nodules.**
- **Minor criteria:**

Criteria	Low-Risk Population	Moderate/High-Risk Population
Arthralgia	Polyarthralgia	Monoarthralgia
Fever	> 38.5°C	> 38.0°C
Acute Phase Reactants	ESR > 60 mm/hr; CRP > 3 mg/dL	ESR > 30 mm/hr; CRP > 3 mg/dL
ECG	Prolonged PR interval	Prolonged PR interval

- **Diagnostic Rules:**
  - **Initial Episode:** Requires Essential Criteria + (2 Major OR 1 Major + 2 Minor).
  - **Recurrent Episode:** Requires Essential Criteria + (2 Major OR 1 Major + 2 Minor OR 3 Minor).

MANAGEMENT OF ACUTE EPISODE

- **Supportive Care**
  - Strict **bed rest** for approximately one week.

DocTutorials
V6 High-Yield Videos
Structured Syllabus, PYQ Recall & QRP Videos
Start Now →
79951 11755 70976 34567 www.doctutorials.com

- Initial antibiotic course (**Penicillin G** or **Azithromycin**) to eliminate the streptococcal source.
- Management of **Congestive Heart Failure (CHF)**: Use **diuretics**; strictly **avoid Digoxin** due to the high risk of myocarditis.

- **Suppressive Therapy (Mainstay of Treatment)**
  - Duration: Total of 12 weeks.
  - **Carditis with CHF: Oral Prednisolone** (2 mg/kg/day for 3 weeks, tapered over 9 weeks).
  - **Carditis without CHF: Prednisolone** (or **Aspirin** if steroids are not tolerated).
  - **Arthritis Only** (No Carditis): High-dose **Aspirin** (90-120 mg/kg/day in divided doses for 10 weeks, tapered over 2 weeks).

PROPHYLAXIS AND PREVENTION

00:16:50

- **Primary Prophylaxis**
  - Administration of antibiotics within 9 days of every streptococcal sore throat to prevent **ARF**.
- **Secondary Prophylaxis**

Recommended duration of prophylaxis for rheumatic fever	
Category	**Duration**
Rheumatic fever without carditis	At least 5 years or until age 21 years, whichever is longer
Rheumatic fever with carditis but without residual heart (no vascular disease)	At least for 10 years or into adulthood, whichever is longer
Rheumatic fever with carditis and residual heart disease (persistent valvular disease)	At least 10 years since last episode and at least until age 40 years; sometimes lifelong prophylaxis

- **Crucial** to prevent recurrence and progressive **RHD**.
- **Drug of Choice: Benzathine Penicillin G** administered intramuscularly.
- **Alternatives: Macrolides** (if allergic to penicillin).
- **Dose:**
  - < 30 kg: 6 lakh IU every 3 weeks.
  - > 30 kg: 12 lakh IU every 3 weeks.
- **Duration of Prophylaxis:**
  - **ARF without Carditis**: 5 years OR until 21 years of age, whichever is later.
  - **ARF with Carditis (No residual RHD)**: 10 years OR until 21 years of age, whichever is later.
  - **ARF with persistent Valvular Disease (RHD)**: 10 years OR until 40 years of age (ideally lifelong).

High Yield Points for Exams

- **Arthritis:**
  - Most common manifestation in the western world.
  - Presents as **Migratory Polyarthritis** typically affecting large joints (knees, elbows, shoulders).
  - Characterized as **non-deforming** with an excellent response to **Aspirin** and **NSAIDs**.
- **Carditis:**
  - Most common manifestation in India.
  - It is a **pancarditis**; however, endocardial involvement determines the prognosis due to valvular damage.
  - **Valves Affected: Mitral valve** is most common, followed by **Aortic**, then **Tricuspid**. The **Pulmonary valve** is never involved.
  - **Gender Prevalence**: Mitral involvement is more common in females; aortic is more common in males.
  - **Murmurs:**

DocTutorials
Grand Tests
Full Length Mock, Ranked against all India
Attempt Now →
79951 11755 70976 34567 www.doctutorials.com

- ➤ Unspecific pansystolic murmur **(Mitral Regurgitation)**.
- ➤ **Carey Coombs Murmur**: A specific rumbling mid-diastolic murmur due to **mitral valvulitis.**

– **Note:**

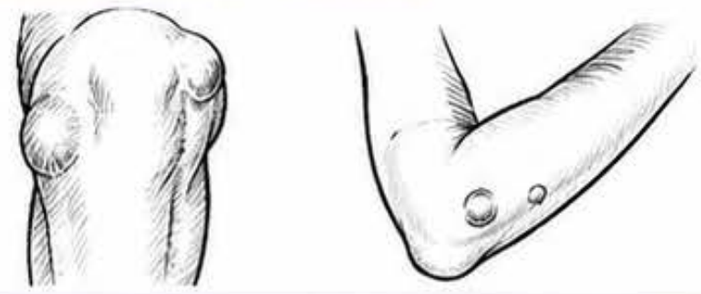
- ➤ **Mitral Regurgitation** is the most common acute defect;
- ➤ **Mitral Stenosis** occurs later in **Rheumatic Heart Disease (RHD).**

- **Chorea (Sydenham's):**
  - The most delayed manifestation, appearing months after the initial infection.
  - Features semi-purposeful jerky movements, jerky speech, and emotional lability.
  - Symptoms worsen with stress and disappear during sleep.
  - Specific clinical signs: **Milkmaid's grip** and **Darting tongue sign.**
  - Usually self-limiting (2-6 weeks); severe cases can be treated with **Haloperidol, Pimozide, Diazepam**, or **Carbamazepine.**

- **Erythema Marginatum:**

One-Liners For Exams

- MC Mitral valve abnormality in ARF: **Mitral Regurgitation**
- MC Mitral valve abnormality in RHD: **Mitral Stenosis** → Non Deforming
- Type of arthritis in ARF: **Migratory Polyarthritis (Large it)**
  - ↳ Excellent response to Aspirin / NSAIDS
- Subcutaneous Nodules: Painless, found on bony prominences & extensor surfaces
- SC Nodules Also Called as Poor Man's ECG



  - Rare manifestation (1-5% of patients, mostly fair-skinned).
  - Non-itchy macules with red borders and pale centers on the trunk and limbs; **always spares the face.**

- **Subcutaneous Nodules:**

One-Liners For Exams

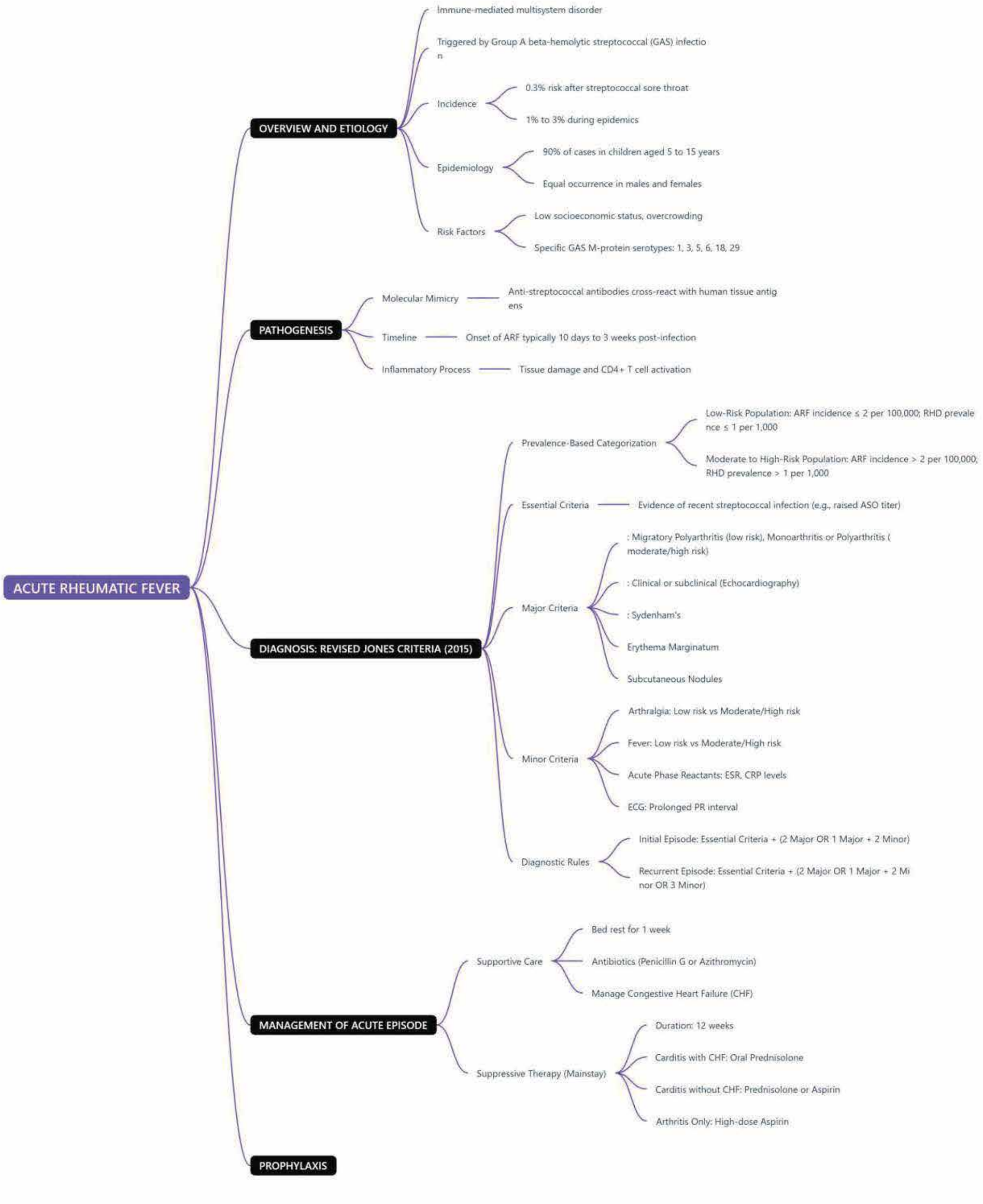
Erythema Marginatum

- Erythematous, non-itchy macules, with red border & pale centers
- Occur on Trunk ≤ Limbs (Spares the face)
- Can be made prominent by: Warmt



  - Painless nodules on bony prominences (elbows, occiput, shin).
  - Known as the **"poor man's ECHO"** because their presence strongly correlates with underlying **Carditis.**

DocTutorials
QRP(Hinglish) Videos
High-Yield Quick Revision Videos in Hinglish
Watch Now →
79951 11755 70976 34567 www.doctutorials.com

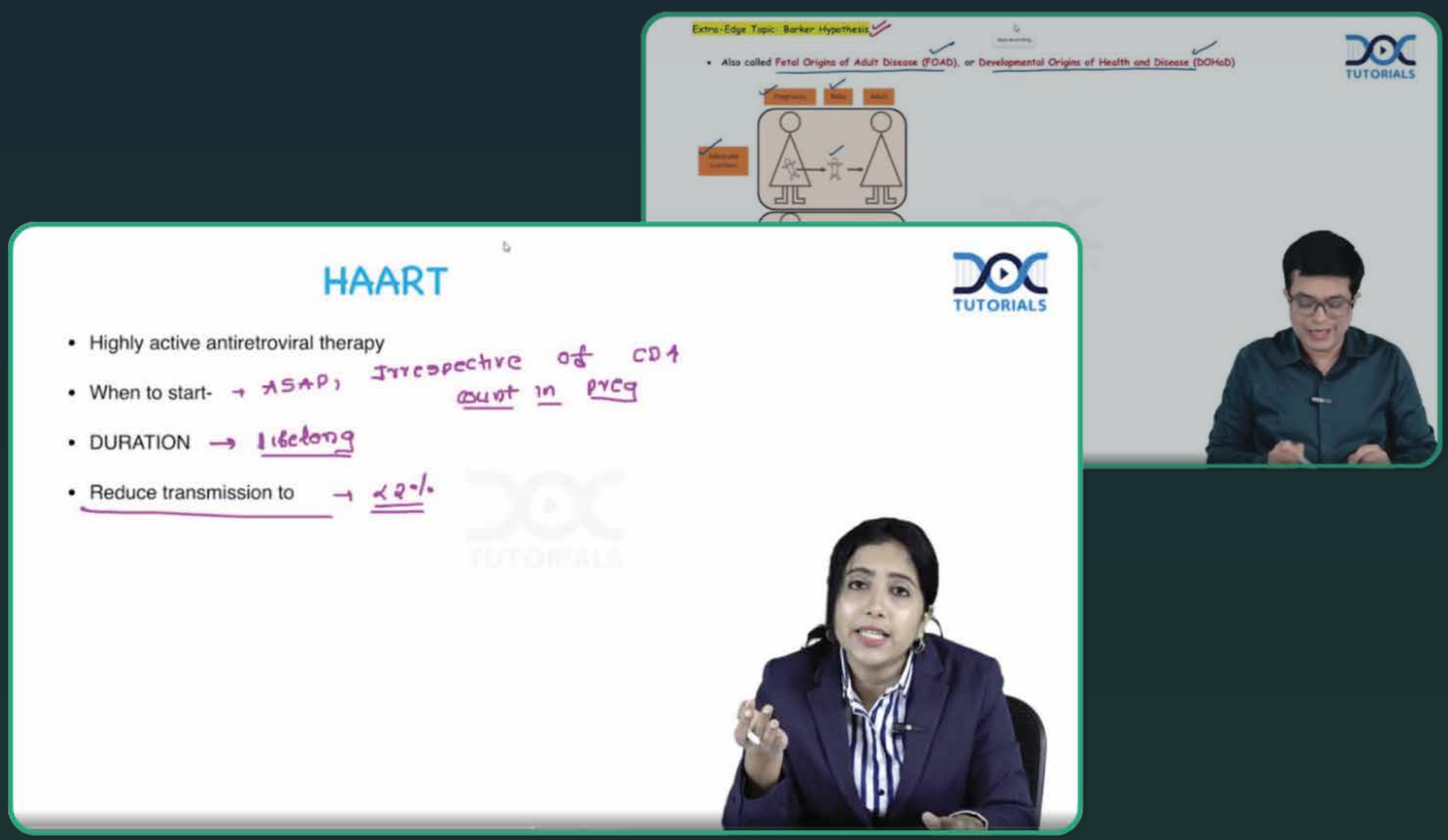


DocTutorials
Mini Tests
Quick Practice. Stronger Preparation
Attempt Now →
79951 11755
70976 34567
www.doctutorials.com

DOC TUTORIALS

FMGE Won't Wait.

Start Structured Prep Now with the Power Pack.



Subscribe Now