

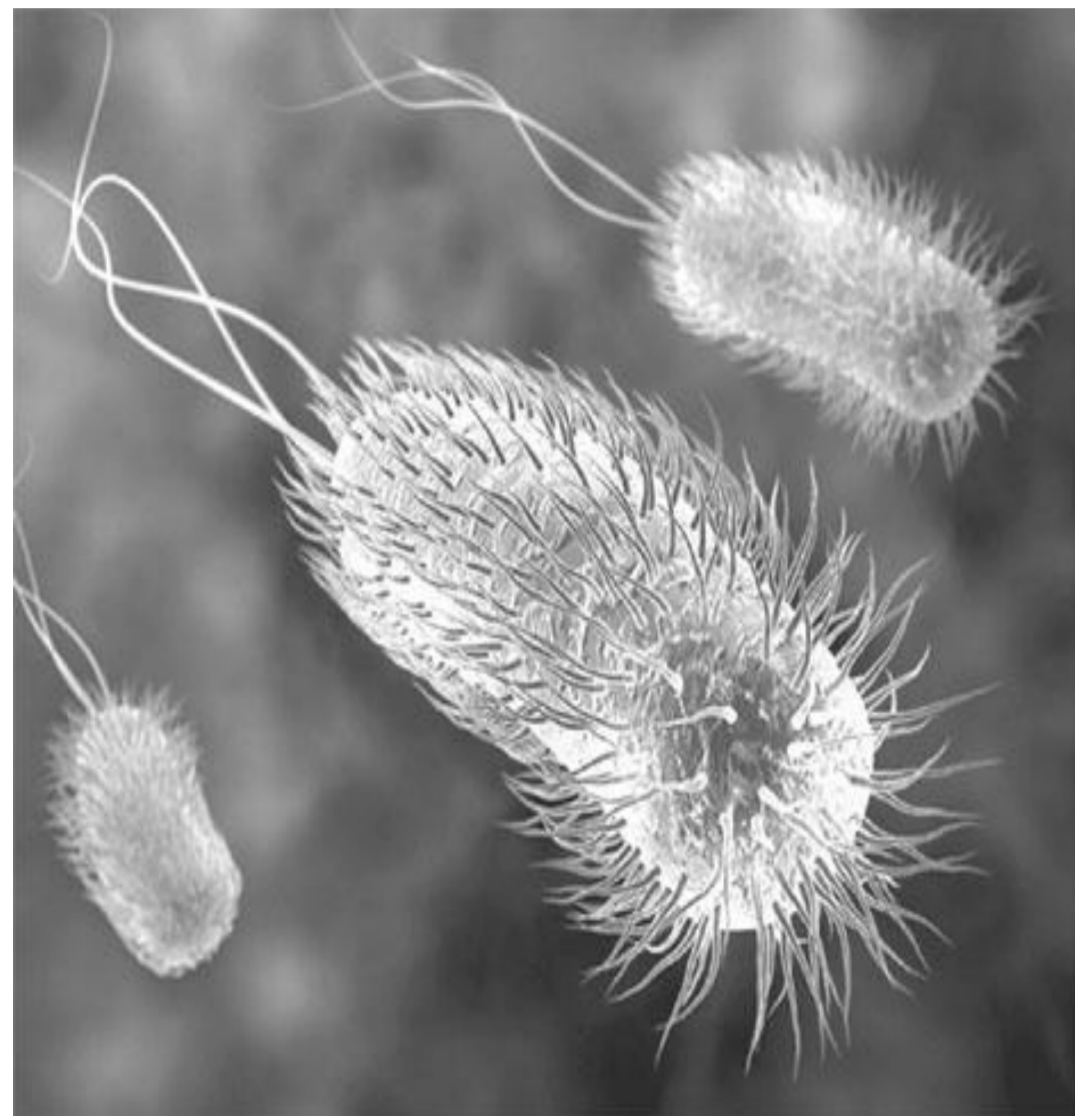
# Encephalitis Lethargica and other Post-Streptococcal Disorders

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## INTRODUCTION

### GROUP A-BETA HAEMOLYTIC STREPTOCOCCUS (GABHS)



Group A streptococcus is the cause of many important human diseases ranging from mild superficial skin infections to life-threatening systemic diseases.

It can induce autoimmune disease in humans with particular involvement of the heart, joints, and brain. Immune cross-reactivity between GABHS and host tissues is well established with regard to molecular mimicry.

## POST STREPTOCOCCAL DISORDERS

### Encephalitis Lethargica (EL):

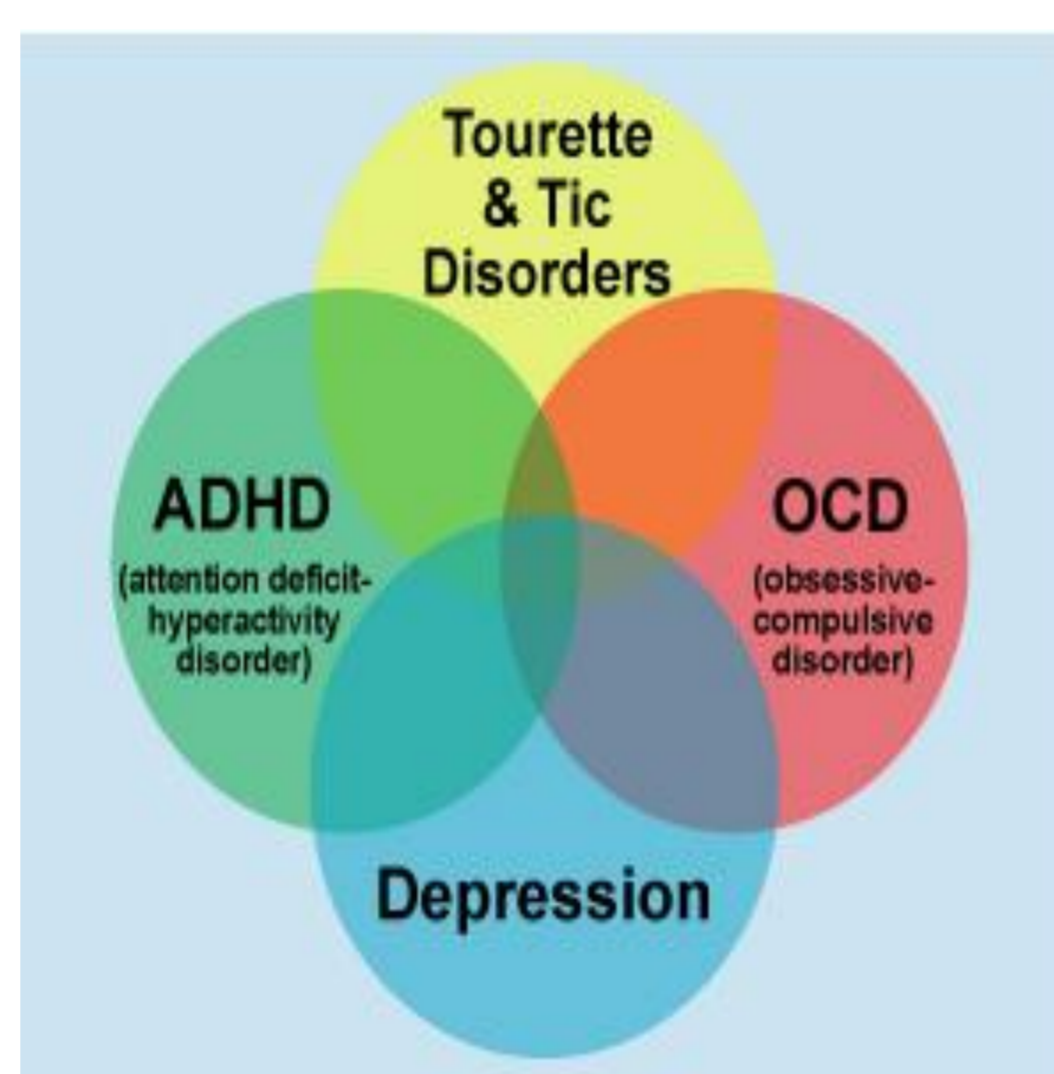
- Disorder presenting with pharyngitis followed by sleep disorder, basal ganglia signs and neuropsychiatric disorders
- In acute cases, patients may enter a coma-like state (akinetic mutism).
- No specific treatment for the underlying disorder is available at present.

### Tourette's Syndrome (TS):

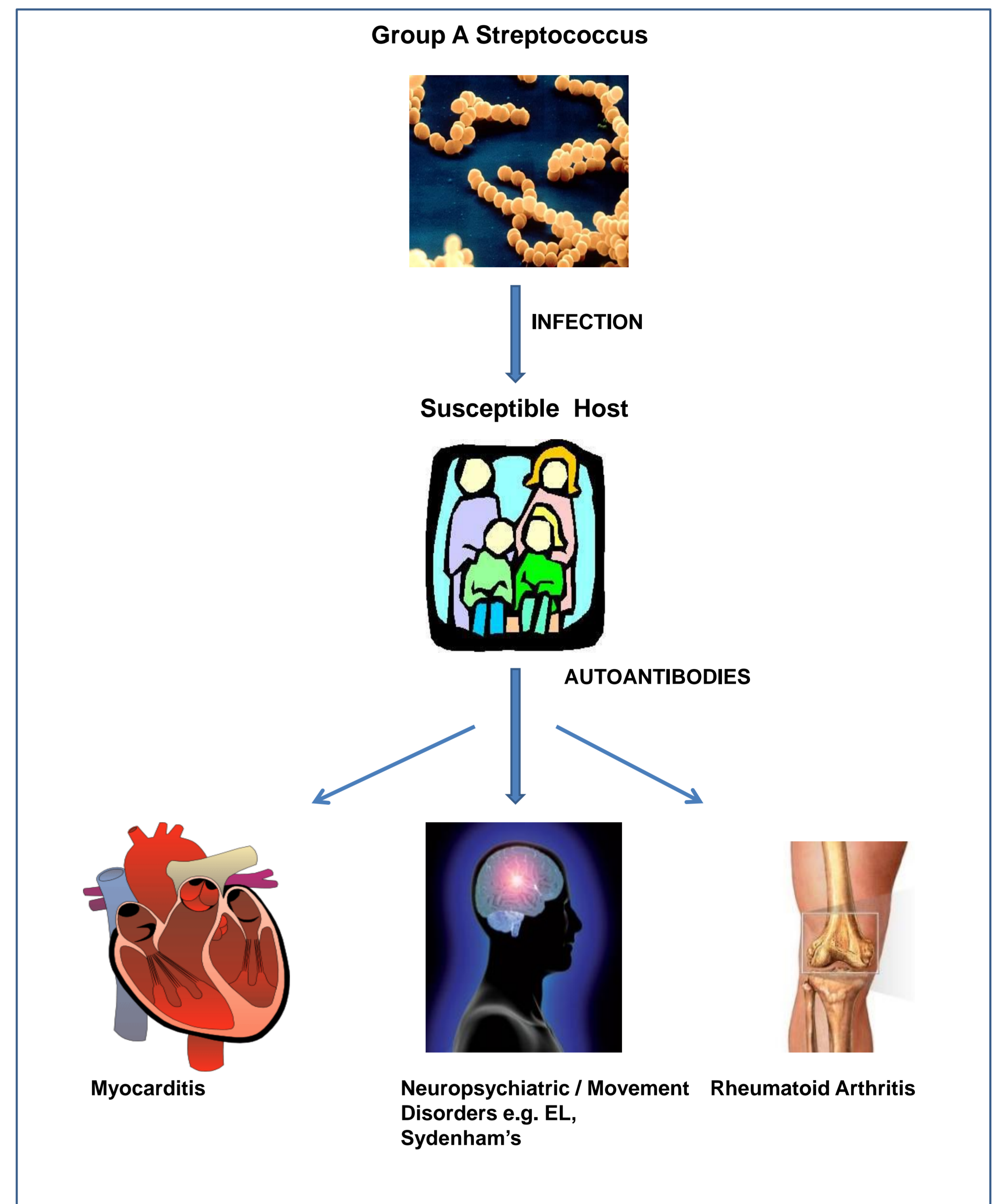
- Inherited neuropsychiatric disorder with childhood onset
- Characterized by the presence of multiple physical (motor) tics and one vocal tic

### Sydenham's Chorea (SC):

- Characterized by rapid uncoordinated jerking movements affecting primarily the face, feet and hands



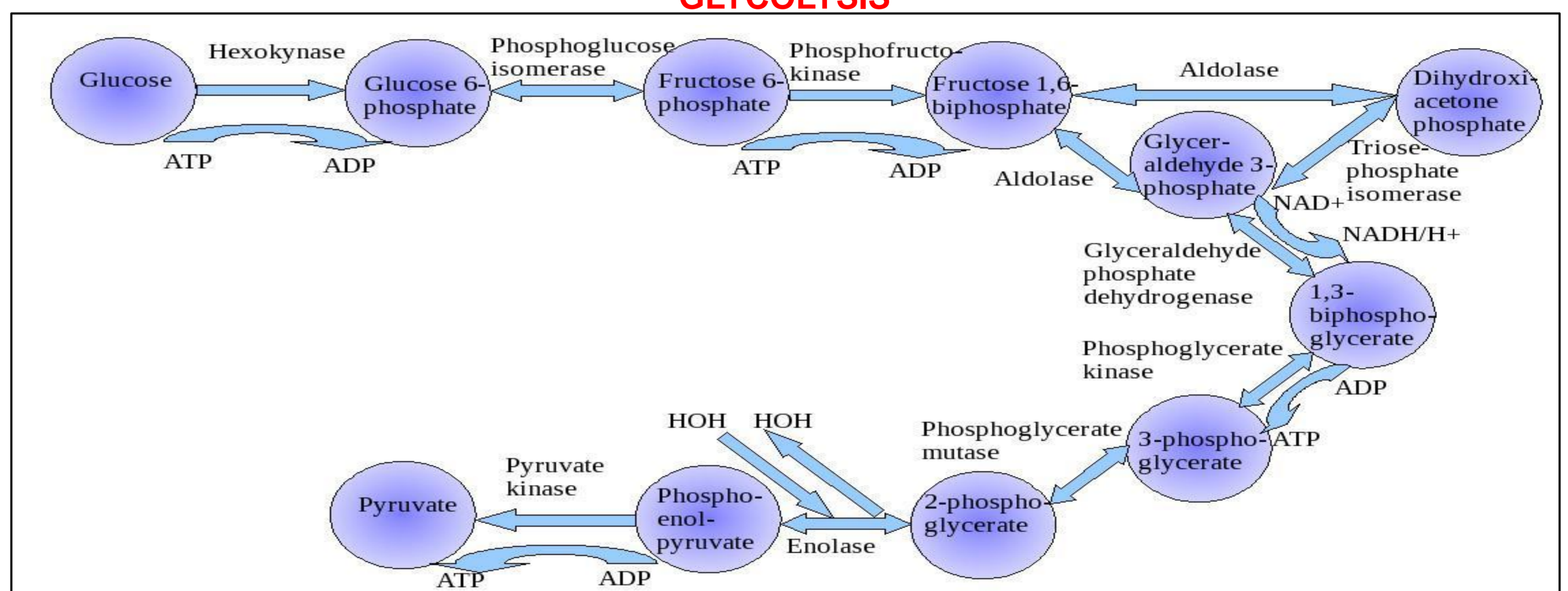
## PATHOGENESIS



## PROPOSED AUTOANTIGENS

- 40 kDa -Aldolase C
- 45 kDa -Neuron specific gamma-enolase
- 45 kDa -Non-neuron specific alpha-enolase
- 60 kDa -Pyruvate kinase M1
- 98 kDa -alpha-gamma enolase dimer
- All putative autoantigens are neuronal glycolytic enzymes
- Share homology with the cell surface of GABHS

### GLYCOLYSIS



## AIMS OF THE STUDY

To set up an animal model that replicates the human condition by :

- Passive transfer of antibodies purified from EL patient plasma
- Active immunization with group A streptococcus proteins
- Active immunization with the target autoantigens

To affinity purify antigen-specific auto-antibodies to investigate the functional effects of ABGA in primary neuronal cell cultures and cardiomyocytes on: enolase activity, ATP synthesis, cell viability and proliferation and apoptosis.

