CHAPTER 3

AIM AND OBJECTIVES
3.1 Aim

To ascertain the association of polymorphisms in the candidate genes involved in the development of Rheumatic heart disease (RHD).

3.2 Objectives

1. To find out the association of genetic variants in inflammatory genes in rheumatic heart disease susceptibility. The genetic markers are as follows:
   - Interleukin-6 (IL-6) -174G/C polymorphism (rs1800795)
   - Interleukin-10 (IL-10) -1082G/A polymorphism (rs1800896)
   - Interleukin-1β (IL-1 β) -511 C/T polymorphism (rs2853550)
   - Interleukin-1RN (IL-1RN) VNTR polymorphism (rs2234663)
   - Transforming growth factor-beta1 (TGF-beta1)
     • TGF-β1 -509 C/T polymorphism (rs1800469)
     • TGF-β1 +869 T/C polymorphism (rs1982073)
   - Tumor necrosis factor (TNF-A) – 308G/A polymorphism (rs1800629)
   - Cytotoxic T lymphocyte-associated antigen-4 (CTLA-4) -318C/T polymorphism (rs5742909)

2. To find out the association of genetic variants in Angiotensin-converting enzyme (ACE) gene in rheumatic heart disease susceptibility. The genetic marker is as follows:
   - ACE Insertion/ deletion polymorphism (rs 4340)
3. To find out the association of genetic variants in Janus kinase-signal transducers and activators of transcription (JAK-STAT) pathway genes in rheumatic heart disease susceptibility. The genetic markers are as follows:

- **STAT3** C/G polymorphism (rs4796793)

- **STAT5B** C/T polymorphism (rs6503691)

4. To find out the association of genetic variants in protein tyrosine phosphatase nonreceptor 22 (PTPN22) genes in rheumatic heart disease susceptibility. The genetic markers are as follows:

- **PTPN22** G/A polymorphism (rs2476601)

- **PTPN22** C/A polymorphism (rs1217406)

- **PTPN22** C/T polymorphism (rs3789609)