Transthyretin Cardiac Amyloidosis: The Disease, Misdiagnosis, and Treatments

What is ATTR?

- Misfolded transthyretin protein (amyloids) secreted from the liver
- Aggregates accumulate predominantly in heart tissue
- Two forms of the disease: spontaneous (caused by wildtype protein) and familial (caused by mutation)
- V122I mutation carried by ~3.4% of African-American population

Misdiagnosis and Diagnosis

- The symptoms of disease mimic heart failure
- Have been recent advancements in diagnosis methods that are less invasive than previous methods
- There exist methods for proper diagnosis, yet misdiagnosis still persists
- 10% of African-Americans with congestive heart failure who carry the V122I mutation

Treatment and Care

- There exist 3 classes of possible treatments; yet few FDA approved drugs exist
- Average life expectancy from diagnosis: ~2.5 to 3.5 years
- The best available treatment is Tafamidis
- Treatments work best in the early stages of the disease

Gene Silencers
- Inhibits production of transthyretin protein
- Amloid Disruptors
- Breaks up amyloid aggregates; no current drugs

Patient with symptoms correlating with ATTR

Cardiac Symptoms

- Hypertrophic Cardiomyopathy (Heart Failure)
- Increased Ventricular Wall Thickness ≥14mm
- Low Blood Pressure

Polynuropathy
Cardiomyopathy
Carpal Tunnel

Accumulation in Heart tissue
Accumulation in various other organs

Transthyretin misfolds

Carotid Intima

Goal

- Why is the disease still misdiagnosed?
- How does misdiagnosis fall heavier on the African-American population?
- How does limited and expensive treatments affect populations where disparities exist?