Genetics and Myositis

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Overview

• Exploration of genetic aspects of myositis, related diseases
• Answer recurring questions about family connections of myositis
• Chris Dotur
  • Personal story with hIBM
  • How to pursue genetic testing
  • Dangers of genetic testing
• Dr. Tom Lloyd
  • Compare/contrast sporadic vs. hereditary vs. familial disease versions
  • DNA Genetic Sequencing
  • Present Genetic Study
• Questions
Chris Introduction

• Family History
  • Father diagnosed with “IBM” in 1993 at age 44
  • Deceased 2017 at age 67, cause of death “IBM”
  • Paternal grandfather may have been affected
  • Croatian familial heritage

• My story
  • Air Force pilot
  • Started noticing effects around age 30
  • Crucial point during Iraq deployment, age 37
My Path to Diagnosis

• Prior EMG/NCS, MRI, CK levels mostly normal or “slightly elevated”
• 2011, visit to Johns Hopkins Myositis Center
  • Clinical visit w/Dr. Lloyd
  • EMG/NCS, MRI, CK blood draw
  • Muscle biopsy – revealed rimmed vacuoles
  • Compare w/ father biopsy slides – identical, no inflammation
  • Suspect autosomal dominant disorder
• Recommend genetic test w/ University of California-Irvine
  • Fought with insurance for year and a half!
  • Geneticist consult
  • Positive test result, military “Medical Evaluation Board”, retirement
My Disease Particulars

• Cause:
  • Defect in Valosin Containing Protein gene (VCP)
  • First discovered by Dr. Virginia Kimonis, UC-Irvine

• Names:
  • VCP Disease
  • hIBM4
  • IBMPFD
  • fALS type 14
  • Pagetoid ALS
  • Multisystem Proteinopathy (MSP) type 1

• “M” for Myopathy, not Myositis!
My Disease Manifestation

• Typically earlier age onset than sIBM
• Slow progression
• My traits
  • Lower back weakness
  • Difficulty walking up incline
  • Difficulty raising arms
  • Only manifesting myopathy in IBMPFD, not “P” or “FD”
  • Eventually fatal
• Autosomal Dominant – 50/50 chance for sister, children
Compare and Contrast with Other Diseases

• vs sIBM
  • Similar physical presentation, effects
  • Biopsy slides similar – rimmed vacuoles, inclusion bodies, minus inflammation
  • Earlier age onset
  • IBMPFD considered fatal

• vs ALS (Lou Gehrig’s Disease)
  • MUCH slower progression
  • Speech retained
  • Tracheotomy not needed

• Motor Neuron Disease (e.g. Dr. Stephen Hawking)

• Medical advancements, disease cross-benefits
Proper Path to Genetic Diagnosis for Patients

• Clinical visit with myositis expert physician
• Laboratory, diagnostic tests
• Potential biopsy
• Geneticist consult
• Final genetic/lab/DNA test
• Can’t/shouldn’t just skip to final step!
Dangers of Genetic Testing

• “... but I just want to know the truth”
• Pandora’s Box!
• May find out genetic information you didn’t want to find
• Genetic information belongs to family, not just individual
• Genetic info can reveal life-changing information sooner than physical manifestation
  • Psychosomatic effect, changing the way you live your life
• Testing children
Dangers of Genetic Testing

- Impact to Insurance, Employment
- Current and future use of genetic information
- US Genetic Information Nondiscrimination Act, 2008
Questions?