Prevalence of Juvenile Idiopathic Arthritis in the Alaska Native Population

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October 18, 2017

Alaska Native Health Research Conference
It’s OK…. Most people haven’t heard of it.

Lots of people think only old people get arthritis. They are wrong!
Juvenile Idiopathic Arthritis (JIA)

- Previously called juvenile rheumatoid arthritis
- Most common form of arthritis in children
- Autoimmune but specific causes unknown
- 6 different subtypes

Epidemiology of JIA

• US population (Olmsted County):
  – Prevalence 57.6 per 100,000 in 2010
• High rates in previous studies of AI/AN populations
  – 2 IHS Areas 1998-2000 and Canadian Inuit
• High rates of rheumatoid arthritis and lupus in Alaska Native population
• Hypothesis was that JIA rates were also high
Care for Children with Arthritis

• Rheumatologists specialize in arthritis and autoimmune diseases
  – Adult
  – Pediatric

• No pediatric rheumatologists in Alaska
  – Seattle Children’s Hospital outreach clinics
  – ANMC and Providence
Purpose

• The primary purpose of this study was to determine the prevalence of JIA in the Alaska Native population.

• Secondary objectives were to:
  – Determine the prevalence of the different subtypes of JIA
  – Describe the clinical characteristics and treatment patterns
Methods

• Potential cases of JIA were identified by a query of administrative data from the EHR
• Required to be ≤ 18 years old as of 9/30/15 and AI/AN resident of Alaska
• Numerator includes those with a diagnosis of JIA confirmed by medical record abstraction
• Denominator is the 2015 Alaska Area IHS user population under age 18
Waiver of Informed Consent

• AAIRB approved waiver of informed consent
• Privacy review from ANTHC approved waiver of authorization for research
• No more than minimal risk
• No procedures for which consent is normally required outside research context
Data Collection

• Query records from 10/1/2011-9/30/2015
• Based on coded diagnosis of JIA or related condition in the existing medical record
• Case finding from Cerner for ANMC
  – This analysis excluded non-Anchorage Service Unit patients
  – Data collection completed for ANMC
• For other statewide tribal health organizations, data collection is either in progress or awaiting tribal approvals.
  – Clinical databases
  – Regional queries of administrative data
Data Abstraction

• Medical records reviewed for all potential cases using a standardized form

• Includes JIA disease data:
  – Age at diagnosis
  – Subtype
  – Disease features
  – Medications
Data Analysis

• Calculated prevalence as of 9/30/15:
  – # of cases / population age 18 and under
  – Defined as rate per 100,000 people
• Overall and for the different JIA subtypes
• Descriptive analysis of clinical features and treatment patterns
Results

Alaska Native Population

Prevalence per 100,000

Overall: 67.5
Female: 91.2
Male: 45.5

Olmsted County, MN

Prevalence per 100,000

Overall: 57.6
Female: 78.4
Male: 38.2
Subtypes of JIA

Alaska Native
- Undifferentiated
- Psoriatic
- Systemic
- Enthesitis-Related
- Polyarthritis
- Oligoarthritis

Olmsted County
- Undifferentiated
- Psoriatic
- Systemic
- Enthesitis-Related
- Polyarthritis
- Oligoarthritis
Enthesitis-Related Arthritis

• Similar to ankylosing spondylitis and related conditions
• Enthesitis = inflammation where tendon inserts into joint
• Associated with HLA B27
# Clinical Characteristics of JIA

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age at diagnosis</td>
<td>9 years</td>
</tr>
<tr>
<td>Mean time from symptoms to diagnosis</td>
<td>17.5 months</td>
</tr>
<tr>
<td>% diagnosed by pediatric rheumatologist</td>
<td>86.8%</td>
</tr>
<tr>
<td>Mean # visits to rheumatologist in past year</td>
<td>2.2</td>
</tr>
<tr>
<td>% with bone erosions present</td>
<td>18%</td>
</tr>
<tr>
<td>% with eye involvement (uveitis)</td>
<td>26%</td>
</tr>
<tr>
<td>% with HLA B27 positive</td>
<td>26%</td>
</tr>
</tbody>
</table>
# Medications in JIA

<table>
<thead>
<tr>
<th>Medication</th>
<th>% ever prescribed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-steroidal anti-inflammatory drugs (NSAIDs)</td>
<td>65.8%</td>
</tr>
<tr>
<td>Methotrexate</td>
<td>60.5%</td>
</tr>
<tr>
<td>Oral steroids</td>
<td>39.5%</td>
</tr>
<tr>
<td>Intra-articular steroids</td>
<td>31.6%</td>
</tr>
<tr>
<td>Adalimumab</td>
<td>31.6%</td>
</tr>
<tr>
<td>Etanercept</td>
<td>23.7%</td>
</tr>
<tr>
<td>Infliximab</td>
<td>15.8%</td>
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</tbody>
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Conclusions

• The prevalence of JIA in the Alaska Native population may be slightly higher than in the general US population.

• In Alaska Native children, enthesitis-related arthritis makes up a higher proportion of cases compared to US children.
JIA RATES

Prevalence of Juvenile Idiopathic Arthritis in the Alaska Native Population

STUDY RESULTS:

72 cases of juvenile idiopathic arthritis per 100,000 Alaska Native children

91 cases of juvenile idiopathic arthritis per 100,000 Alaska Native female children, higher than in males

SUBTYPES OF JIA

ALASKA NATIVE

O: oligoarthritis; P: polyarthritis; E: enthesitis-related; S: systemic; Ps: psoriatic; U: undifferentiated

US

COMMON MEDICATIONS

NSAIDs
Methotrexate
Steroids
TNF inhibitors