TeleRheumatology in Practice

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NRTRC CONFERENCE

ALASKA NATIVE TRIBAL HEALTH CONSORTIUM
Objectives

Understand the unique challenges of using telemedicine to provide rheumatology care

Describe several different approaches for using synchronous or asynchronous telemedicine in rheumatology

Review the benefits of telemedicine in rheumatology, with a focus on rheumatoid arthritis
How can I do a joint exam?
Approaches to Joint Exam

Trained presenter
- Works well with one or a few outreach sites
- Mid-level provider often trained to conduct detailed joint exam

Visual inspection
- Swelling and deformity can be visualized to some extent
- Non-trained presenter can assist with range of motion testing
- Works well for hands but not as well for lower extremity joints
Approaches without Joint Exam

Technological tools to assess joints or overall functional status
- Thermal imaging
- Wearable mobile devices with patient-generated health data

Focus on other important components of follow-up
- Education
- Medication monitoring
- Disease monitoring (other than exam)
- More frequent follow-up than in-person only, even if there is not a joint exam at each visit
TeleRheumatology Systematic Review

Telerheumatology: A Systematic Review

John A. McDougall, Elizabeth D. Ferucci, Janis Glover, and Liana Fraenkel

Phases of Disease
Which Diseases
Communications Method
Presenter
Type of Study
Any Cost Analysis?
# TeleRheumatology: Studies in Systematic Review

<table>
<thead>
<tr>
<th></th>
<th>Studies</th>
<th>Patients</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall</strong></td>
<td>20</td>
<td>1426</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Date of publication</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2010-2015</td>
<td>8</td>
<td>730</td>
<td>51%</td>
</tr>
<tr>
<td>Prior to 2010</td>
<td>12</td>
<td>696</td>
<td>49%</td>
</tr>
<tr>
<td><strong>Trial method</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Randomized controlled trial</td>
<td>1</td>
<td>46</td>
<td>3%</td>
</tr>
<tr>
<td>Observational</td>
<td>19</td>
<td>1380</td>
<td>97%</td>
</tr>
<tr>
<td>Cost analysis attempted</td>
<td>6</td>
<td>222</td>
<td>16%</td>
</tr>
</tbody>
</table>
TeleRheumatology: Phases and Diseases

Phase of Care:
- Follow-up visits (60% of studies)
- Initial visits (34% of studies)

Diagnosis:
- Any diagnosis can be eligible unless:
  - In-person exam is critical for decision-making
  - Tests or treatments are needed now that cannot be delivered in the home community

![Bar graph showing percentage of visits by diagnosis and region]
## TeleRheumatology Methods and Presenters

<table>
<thead>
<tr>
<th>Communications Method</th>
<th>Total % Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTC (12 studies)</td>
<td>34%</td>
</tr>
<tr>
<td>Asynchronous (3 studies)</td>
<td>15%</td>
</tr>
<tr>
<td>Telephone-based (6 studies)</td>
<td>44%</td>
</tr>
<tr>
<td>Smartphone (1 study)</td>
<td>10%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VTC presenter</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Physician</td>
<td>66%</td>
</tr>
<tr>
<td>RN, PT, med tech</td>
<td>21%</td>
</tr>
<tr>
<td>Not specified</td>
<td>13%</td>
</tr>
</tbody>
</table>
TeleRheumatology: Asynchronous Program Example

Department of Defense e-Consult program

Rheumatology data presented at ACR annual meeting in 2014
◦ Retrospective analysis of 193 e-Consults for rheumatology
◦ 98% answered within 24 hours with average of 5.3 hours
◦ Most common diagnoses were forms of inflammatory arthritis (48%)
◦ Rheumatologists provided input on diagnosis and management
◦ Dispositions changed for more than 1/3
◦ Only 25 of 193 were evacuated to a tertiary medical center

Pitfalls:
◦ Specialist exam is not possible
◦ Lab data are not specific

TeleRheumatology: Synchronous Program Examples

Prisons:
- Gundersen Health System (WI) presented at ACR annual meeting in 2018
- Records and labs faxed before the visit
- Vital signs taken by DOC but exam is done only with assistance of the patient
- May still need in-person visit

Rural veterans:
- Established diagnosis of inflammatory arthritis
- Synchronous telemedicine visits every 2-4 months without trained presenters, with in-person rheumatologist visit every 6-12 months
- Study* found patient-reported outcomes and satisfaction similar in telemedicine and usual care groups, with significant cost savings

*Wood PR, Caplan L. J Clin Rheumatol 2019;25:41
Rheumatology in the Alaska Tribal Health System

Alaska Tribal Health System
- Affiliation of regional tribal health organizations statewide

Specialty Care
- Hospital clinic (Anchorage)
- Field clinics
- Telemedicine
TeleRheumatology in the Alaska Tribal Health System

**Phase of care:** follow-up visits

**Diseases:** any disease, but rheumatoid arthritis is most common

**Method of communication:** synchronous video visits

**Presenters:** not trained in rheumatology or to do a joint exam

**Other unique features:**
- Integrate video visits in regular clinic day schedule
- Alternate with in-person visits at field clinic or hospital clinic
- Multiple remote clinic sites
- Emphasis on continuity (usual rheumatologist, usual site of primary care)
- Patient is in a remote clinic, not at home or on mobile device
Rheumatoid Arthritis (RA)

Autoimmune and chronic disease
More common in women
High prevalence/incidence in AI/AN populations
Inflammation of multiple joints, usually symmetric
Younger age of onset than osteoarthritis
Several complications of inadequately controlled disease:
  ◦ Joint damage and disability
  ◦ Early mortality
Management of Rheumatoid Arthritis

Permanent joint damage can occur early in RA

Early diagnosis and prompt treatment with DMARDs (disease-modifying anti-rheumatic drugs) improves outcomes:
- Improves quality of life and functional status
- Reduces likelihood of joint replacement
- Reduces risk of early mortality

Current guidelines recommend a “treat to target” strategy
- Requires frequent assessment by a rheumatologist
Rural Patients and Rheumatologist Access

US Health Service Areas with mean Medicare beneficiary travel time to a rheumatologist of >=90 min


Study Design: Telemedicine in RA

Aims:
1. Impact of telemedicine on RA disease activity
2. Impact of telemedicine on access to care and quality of care for RA

Study Population:
- Diagnosis of RA by a rheumatologist seen for follow-up
- Telemedicine and in-person care both offered as part of usual care
- Disease activity, telemedicine perception survey, and quality measures at baseline and one year
- Recruited between 2016-2018 and followed until March 2019
Results: Factors Associated with Telemedicine Use in RA at Baseline

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Telemedicine (n=56)</th>
<th>In-person only (n=66)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, year, mean (SD)</td>
<td>52.2 (12.2)</td>
<td>52.2 (13.9)</td>
<td>0.971</td>
</tr>
<tr>
<td>Female, n (%)</td>
<td>45 (80%)</td>
<td>57 (86%)</td>
<td>0.372</td>
</tr>
<tr>
<td>RA disease duration, years, mean (SD)</td>
<td>10.0 (8.8)</td>
<td>10.2 (10.9)</td>
<td>0.421</td>
</tr>
<tr>
<td>RAPID3 score (0-30 scale), mean (SD)</td>
<td>12.63 (5.4)</td>
<td>10.43 (5.5)</td>
<td>0.037*</td>
</tr>
<tr>
<td>Number of rheumatology visits in past year, mean (SD)</td>
<td>2.95 (1.35)</td>
<td>2.39 (1.32)</td>
<td>0.011*</td>
</tr>
<tr>
<td>Rheumatologist telemedicine rate, mean (SD)</td>
<td>0.196 (0.064)</td>
<td>0.115 (0.094)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Telemedicine survey score (possible range -2 to +2), mean (SD)</td>
<td>0.547 (0.625)</td>
<td>0.238 (0.597)</td>
<td>0.001*</td>
</tr>
<tr>
<td>Ever seen by telemedicine by another provider, n (%)</td>
<td>9 (16%)</td>
<td>4 (6%)</td>
<td>0.074</td>
</tr>
</tbody>
</table>

Not shown and not associated: autoantibodies, erosions, smoking, comorbidity index, DMARD prescribed, distance

Preliminary Results: Disease Activity and Quality of Care

Preliminary results presented in fall 2018 at American College of Rheumatology
- 81 participants followed from baseline to 6 months
- RAPID3 lower in in-person group at 6 months
  - This was also the case at baseline
- Change in RAPID3 and functional status from 0 to 6 months did not differ by group
- No difference in proportion in LDA/remission at 6 months by RAPID3
- Conclusions: no difference in short term outcomes using telemedicine vs. in-person only care

Final results (to 12 months) have been analyzed and manuscript is in progress
Conclusions: Telemedicine in RA

Telemedicine can be a useful adjunct in managing RA and other rheumatic diseases.

Requirement for joint examination limits its utility for initial diagnosis in rheumatology.

More likely to be used by patients who have more active disease and more favorable opinions of telemedicine.

No clear difference in quality of care vs. in-person only visits in short term.

Ability to see patients more often may improve long term disease outcomes.
Future Study

Small sample size for studies of rheumatoid arthritis

New study focuses on broader set of chronic diseases

Pilot project using semi-structured interviews with patients and providers
  ◦ Benefits and barriers of telemedicine for chronic disease specialty care

Funded study started 4/1/2019 with the following aims:
  1. Determine the predictors of receiving care by video telemedicine for chronic disease
  2. Investigate the relationship between video telemedicine and clinical outcomes of chronic diseases
  3. Perform a cost comparison of video telemedicine and in-person visits for chronic disease specialty care
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