A COMPARATIVE STUDY ON THE UTILITY OF TELEHEALTH IN THE PROVISION OF RHEUMATOLOGY SERVICES TO RURAL AND NORTHERN COMMUNITIES

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ABSTRACT

Introduction. There is a critical shortage of specialty rheumatology services in Canada. The impact is felt more in rural and northern regions than on urban areas of the country. In response to the need, this study was conducted to compare the satisfaction of referring physicians with rheumatology services through conventional visiting specialty clinics; email consults and regularly scheduled videoconference.

Methods. Three rural communities of similar size and availability of physician services were assigned to one of the following means of providing outreach rheumatology services: visiting rheumatologist clinics, email access to rheumatologist and scheduled videoconference consults. A case based pre/post test, and post satisfaction questionnaire were administered to the primary care physicians in these communities. Patient outcomes, and physician ability and confidence in managing specific arthritis problems, were measured.

Results. Physicians responded positively to all methods of rheumatology service provision. The videoconference group were the most positive. The reasons were: immediate feedback to referring physician and patient, effective case based learning and transfer of knowledge, and improved accessibility.

Conclusion. Videoconference is preferred to visiting clinics and email as a method for rheumatology services to rural/northern communities. It is cost effective and there is knowledge transfer between the rheumatologist and the referring physicians. *(Int J Circumpolar Health 2004;63(4):415-421)*

Key words: telehealth, rheumatology, rural/northern, education

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INTRODUCTION

Arthritis is a major health and socio-economic problem in Canada. Different types of arthritis affect up to 4 million Canadians and about 71,000 Newfoundlanders and Labradorians. These numbers will increase with the aging of baby boomers in the next century. At the present time, the annual cost (direct and indirect) of arthritis in Canada stands at about 7.9 billion dollars. These numbers are destined to increase drastically in the coming decades given the increase in the number of arthritis sufferers, the advances in diagnostic technology and the advent of new and expensive medications (1).

Management of patients with arthritis can be problematic and one of the problems is the delay in getting referral to rheumatologists. This leads to a delay in initiating appropriate therapy that can halt the progress of the disease in its early stages. This early intervention may prevent the advent of joint damage and consequently the loss of function and long-term disability. The proportion of Canadians who felt that they had not received the health care they needed during the previous 12 months was greatest for people with arthritis compared with people with other and no chronic conditions. Overall, 18% of people with arthritis reported that they did not receive health care when needed: 10% reported that care was either unavailable in their area, unavailable when required or required too long a wait (2).

P Davis et al (3) reported that a rheumatology telehealth clinic in northern Alberta was effective and cost neutral compared to face-to-face consultation. After the teleconsultation, no patient required a conventional face-to-face consultation. Overall, patients agreed that the teleconsultation met their needs and that the care they received was as good as conventional care. The physicians involved in the study thought the process practical and effective. The total cost of service delivery would be equal for teleconsultation and for traditional consultation at a workload of 247 consultations a year.

Primary care physicians manage the majority of musculo-skeletal problems in Newfoundland and Labrador. Studies in Ontario and in the US have determined that arthritis training is sub-optimal both at the undergraduate and postgraduate levels (4,5). Primary care physicians have identified arthritis management and the use of NSAIDS as areas that require more continuing medical education (6). Enhancing the training of physicians in arthritis management can improve the uti-

lization of investigations and more appropriate use of drugs such as NSAIDS and shorten the delay in starting disease modifying treatments.

METHODS

Three rural communities, each with a small hospital run mainly by primary care physicians in Newfoundland and Labrador, were chosen for the study. The control community continued with 8 weekly visiting clinics by a rheumatologist based in an urban tertiary care center. The second community was offered the consulting services of the same rheumatologist through email as needed. Replies to the email were available at the latest by the following day. The third community was offered one monthly one-hour rheumatology videoconference clinics where one long case and up to two short cases were discussed. The patient involved could be in attendance at the discretion of the referring physician and with consent from the patient. All primary care physicians in the group were invited to attend the videoconsultation. There was time for group discussion on the case. The referring physicians gave individual patients the final advice.

There were six physicians involved with videoconsultation, two physicians with email and two physicians with visiting clinics. Pre and post case based physician tests on the management of rheumatoid arthritis and osteoarthritis were given to all ten physicians before and after the intervention. Physicians from the three participating communities were individually asked to rate the support interventions. They were asked to rate their satisfaction with accessibility to rheumatologist for consultation, usefulness of the method of consultation and the impact it had on their management. The options for rating were very unsatisfied, unsatisfied, neutral, satisfied and very satisfied. They were also requested to provide recommendations for improvements and general comments on rheumatology services.

RESULTS

Ten physicians completed a satisfaction questionnaire. All six physicians involved in videoconsultation were very satisfied and all four

physicians using email and the traditional visiting clinics were satisfied with the method of consultation.

All physicians using once monthly videoconferencing for rheumatology consultation rated accessibility as very satisfactory. The physicians in the other groups rated accessibility as being satisfactory.

The three groups expressed similar views regarding the chronic complex nature of arthritis patients and the challenges that exist for rural family practitioners in their care. A common theme was the perceived limited access to specialty services which include rheumatology, orthopedic, and to a lesser extent occupational and physiotherapy. All the primary care physicians expressed lack of confidence in patient diagnosis, drug treatment and assessment of patient responses to treatment.

Following 5 months of intervention, the videoconference group reported an increase in their level of understanding in various areas of arthritis management that was transferable to their clinical practice. Such areas included treatments using multiple drugs, use of joint injections, pain control and the use of available new treatments. The immediate feedback with videoconsultation was mentioned by all physicians involved as being a positive feature. The weaknesses of this method of consultation were:

- Occasional technical difficulties.
- Time required in preparing for case presentation.
- Voice and picture delay between the two sites because of the satellite transmission.
- Lack of the ability to archive the consult although notes could be taken by the referring physicians and the consultant rheumatologist.
- The inability for the consultant rheumatologist to be paid under the current medical payment system.

E-mail support, although utilized less by participants, was also found to be useful in improving physician knowledge level in arthritis diagnosis, management and new drug therapies. It provided for prompt but not immediate responses.

The control group with traditional on-site rheumatology clinics expressed satisfaction with their involvement in the study but did not report a change in their management of arthritis. There was no increase in knowledge level, no change in clinical practice, a long wait of six

months for the patients to be seen and there was a time delay for the referring physician in receiving the written report.

In the site using videoconsultation, patients would otherwise have to make a 3-hour plane trip and allocate 3 days to see a rheumatologist. The average cost of the travel from Labrador to the rheumatologist in the tertiary care center in St. John's and the minimum living expenses for patients is $975. The average number of patients seen by videoconference was 2 per one hour. The cost for one hour of connection was $175. The cost of travel of $975 easily offsets the cost of videoconference of $87.50 per one-half hour. The federal government pays the cost of travel for medical reasons for aboriginal patients and federal employees. Five of the ten patients were aboriginal patients. For the other patients who have to pay for travel expenses, the provincial government loses tax revenue for the amounts beyond $500 which are tax deductible. There is less loss of time from work with videoconsult: one-half day versus three days if patients have to travel. This will be borne by government agencies if the patients are government employees.

DISCUSSION

Physicians using videoconsultation appeared to be more satisfied with the method of consultation and with accessibility to the rheumatologist than physicians who accessed rheumatology consultation through email and visiting clinics. There were insufficient numbers of participants to come to definite conclusions but the results suggest that videoconsultation is a reasonable option for rural communities.

It is recommended that consideration be given to the different factors that can affect the success of videoconsultation. The set up for the videoconference consult was unique because it allowed for physicians other than referring and consulting physicians to participate and acquire knowledge in the consultation. Physicians were enticed to attend because they were able to obtain Main-Pro 1 CME credits for the maintenance of certification with the College of Family Physicians of Canada. Through the cased based, real life professional development exercise, physicians in this group felt that they gained new knowledge and were more confident in managing similar complex patients.

Learning was not reported to have occurred where the consulting rheumatologist saw patients at the visiting clinics. It occurred with email consults however learning was greatest in the videoconference group.

As primary care physicians continue to learn to manage complex rheumatological conditions there will be less need for referrals. This may help alleviate the current waiting list for rheumatology consultations. Case based videoconferencing is in line with the current pilot project in Atlantic Canada to train practicing family physicians in rheumatology for one year so that on completion they offer rheumatology consultations for their colleagues.

Because of the geography of Newfoundland and Labrador, there are many isolated rural communities. Travel for patients to see a rheumatologist is difficult and costly.

Videoconferencing in such communities saves money for the government and the savings can be used for other health programs.

CONCLUSION

All three groups provided positive feedback and identified limited access to specialty services as a major obstacle.

Preference was expressed for videoconferencing due to its ability to offer immediate feedback, its accessibility and its cost effectiveness. This group reported an increase in knowledge level regarding overall arthritis management, which was transferable to clinical practice.

The e-mail intervention was less utilized for various reasons, but reportedly beneficial in improving physician knowledge level.

The consultation/control group expressed participation satisfaction, but could not identify a positive impact on their clinical practice.

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