Editorial

Arthritis in Indigenous Populations: A Neglected Health Disparity

From a public health perspective, disparities in the burden of disease or access to care between populations can guide health policy and funding for public health programs and research. Information about health disparities can also provide insight into factors influencing the development or severity of disease, as well as evidence for interventions to reduce such disparities. Population health studies often focus on conditions resulting in high mortality rates, such as cardiovascular disease, cancer, and diabetes. Arthritis, while sometimes included in these studies, is often neglected. In addition, most population-based studies provide limited information about minority populations, especially smaller populations. Indigenous people represent a small but unique minority population, and they are often underrepresented in national surveillance studies or administrative claims databases. Disparities in chronic medical conditions and associated risk factors have been documented in indigenous populations, and possible social and behavioral causes have been identified[1,2]. However, it is unusual for such studies to focus on arthritis, despite its high prevalence. In addition, it is unusual for studies to include data from several different sources on the burden of arthritis in indigenous populations.

In this issue of *The Journal*, Barnabe and coworkers[3] use several different data sets to define the burden of arthritis in Aboriginal Manitobans in Canada. These include an administrative claims database for the Province of Manitoba, a population-based survey of First Nations people in Manitoba, and data on the distribution of diagnoses seen by ethnicity at the Arthritis Centre clinic at the Health Sciences Center in Winnipeg, Manitoba. Using the administrative claims data, the authors demonstrate that Aboriginal Manitobans are about twice as likely to have at least one physician claim per year for diagnostic codes associated with rheumatoid arthritis [RA; International Classification of Diseases, 9th revision (ICD-9) codes 714.x], degenerative arthritis (ICD-9 codes 715.x), and unspecified arthropathy (ICD-9 codes 716.x). In the population-based survey, 21% of the First Nations population surveyed reported doctor-diagnosed arthritis and 3% reported a diagnosis of RA. Arthritis-attributable limitations were reported by 68% of First Nations people reporting arthritis, and 77% of those reporting RA. Finally, the data from the Arthritis Centre, the primary source of rheumatology services for Aboriginal Manitobans, demonstrate that in comparison to Caucasian patients in the clinic, Aboriginal patients are more likely to be seen for inflammatory conditions [RA, juvenile rheumatoid arthritis, systemic lupus erythematosus (SLE), vasculitis, and reactive arthritis] and less likely to be seen for non-inflammatory conditions (osteoarthritis, fibromyalgia, and mechanical lower back pain). Of note, crystal arthropathies, psoriatic arthritis, and polymyalgia rheumatica were less common in Aboriginal than in Caucasian patients.

The administrative and survey data provide a picture of a high burden of arthritis in Aboriginal Manitobans, and the clinic data point to the possibility of more inflammatory arthritis than expected in this population. However, the authors point out that the percentage of patients seen in the Arthritis Centre clinic who are Aboriginal is similar to that of the general population, and therefore lower than might be expected based on claims and survey data showing a high burden of disease. In addition, despite having more inflammatory arthritis, Aboriginal patients were seen less often in the Arthritis Centre than non-Aboriginal patients. The authors speculate that Aboriginal people, while accessing medical care for arthritis at high rates based on claims data, are not accessing specialist care at adequate rates. Several possible explanations are considered by the authors, including under-referral to rheumatologists and other specialists, and geographic or cultural barriers to accessing specialty care. The authors point out that these data are consistent with other published studies documenting under-utilization of specialist care by Aboriginal people in Manitoba[4].

How do the data presented by Barnabe and colleagues compare to other data on arthritis in indigenous populations? The prevalence of specific forms of inflammatory arthritis has been documented to be high in certain American Indian, Alaska Native, and First Nations populations. Specifically, the prevalence of RA in many tribes is the highest in the world[5,6], and SLE[6,7] and seronegative spondyloarthropathy[6,8] are present at high rates in different indigenous populations. Population-based surveys in Canada, Australia, and the United States have found that

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indigenous populations report arthritis more frequently than non-indigenous populations[9-11]. A recent analysis of the Canadian Community Health Survey found Aboriginal origin to be one of several factors significantly associated with reporting of arthritis at the individual level, and the percentage of families of Aboriginal origin to be one of 2 factors associated at the regional level[12]. However, detailed evaluation of the forms of arthritis contributing to the higher rates of self-reported arthritis in these surveys has not been performed.

One notable difference from the results of national surveys for the general population is the high rate of arthritis-attributable limitations described by Barnabe, *et al*. In the US National Health Interview Survey, arthritis-attributable work limitation has been reported by about 30% of respondents with self-reported arthritis[13], in contrast to 68% described in the Manitoba First Nations survey. The disparity in activity limitation between Aboriginal and non-Aboriginal populations is consistent with findings from other Canadian survey data, as described by the authors. Although causality cannot be determined from the data presented, it is possible that lower rates of specialist access are related to higher rates of disability. It is also possible that other social, economic, or cultural factors are playing a role in activity limitation or reporting of it.

The data presented raise several additional research questions related to the disparity in burden of arthritis or access to specialist care. First, it would be useful to obtain more comprehensive information about the specific diagnoses accounting for the high burden of claims data and self-reported arthritis. Second, determination of the incidence and prevalence of defined forms of arthritis in population-based prospective studies of indigenous people would be ideal. Finally, research should investigate the reasons for differential access to specialists, including referral patterns, access to other modalities of care for arthritis such as traditional medicine or traditional healers, cultural views of arthritis, and geographic or other barriers to specialist care.

There are important ethical and cultural considerations that must be addressed when considering research in indigenous populations. The research questions suggested above will not be answered without attention to these ethical principles. The Canadian Institutes for Health Research (CIHR) has published guidelines for research in Aboriginal populations[14]. The US Department of Health and Human Services has established an American Indian and Alaska Native Health Research Advisory Council, and similar guidelines for federally-funded research in the US are expected. Organizations including the Indian Health Service and tribal health organizations in the US have guidelines in place for research ethics and tribal approval of research. Involving communities and tribal organizations in research planning, implementation, and interpretation is critical, especially if findings about the burden of diseases are to be translated into funding, public health programs, or changes in the healthcare delivery system.

In the case of arthritis in indigenous populations, it is clear that a health disparity exists. However, given that arthritis represents a heterogeneous group of conditions without clear modifiable risk factors at the population level, the public health implications of a high burden of arthritis are not as obvious as for conditions such as obesity, diabetes, and tobacco-related disorders. Recommendations for improvement in this disparity will depend on future research, needed both to elucidate the underlying causes of the disparity in overall burden of arthritis and to explore the reasons for under-utilization of specialist care in these populations.

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