The WHO ILAR COPCORD Latin America

Consistent With the World and Setting a New Perspective

Arvind Chopra, MD, DNB

The Community-Oriented Program for Control of Rheumatic Diseases (COPCORD) was launched through the concerted effort of the International League of Associations for Rheumatology (ILAR) and World Health Organization (WHO) in the early 1980s to acquire data on musculoskeletal (MSK) pain and disability.[1] Its focus was on the developing world. COPCORD was designed a low-cost low-infrastructure model and was to be carried out in 3 successive stages—collect population data in a house-to-house survey (stage 1), educate community and identify risk factors (stage 2), and implement control and preventive strategies (stage 3). The key issues were identification of a well-defined sampling frame (not necessarily randomized) population and a grassroots rheumatology-oriented physician. COPCORD surveys[2,3] have been completed in 22 countries. Started in the Philippines, COPCORD rapidly swept across the Asia-Pacific region and has traditionally enjoyed a vantage position with the Asia-Pacific League of Associations for Rheumatology. After slow beginnings, rapid strides were made in Latin America, and the recent COPCORD surveys in Mexico[4] and Guatemala,[5] with sufficient population samples, have unraveled newer insights in community rheumatology and epidemiology in particular.

COPCORD Guatemala[5] was a well-planned and executed survey of 8000 population and equally divided between urban and rural communities. Importantly, the whole survey was completed in a timely fashion (9 months) using the COPCORD Bhigwan (India) fast-track model.[6] Earlier in 1996, a 7000+ population survey was completed in the village of Bhigwan in 5 weeks' time.[7] The model advocates a carefully designed and a priori–rehearsed strategy, well-coordinated team effort (physicians and a large team of trained local health volunteers), and a field operation in which the 3 phases of stage 1 survey are completed in parallel. Speedy execution is a critical factor (population survey) to ensure robust community compliance and response, comprehensive data capture, and a truly suitable "point prevalence" data.

COPCORD Guatemala[5] should be viewed in a Latin American perspective. Table 1 provides an overview of some of the key prevalence data from COPCORD surveys in the region.[4,5,8–11] All surveys used a similar COPCORD core questionnaire (CCQ) that was earlier adapted (regional use) and validated.[12] The primary outcome was MSK pain and disability. Except for the Guatemala survey, all other COPCORD surveys were carried out in randomized population samples. The diversity in culture, traditions, dialect, and lifestyle in Latin America is striking and a challenge to community surveys and national prevalence statistics, and this was well described by both COPCORD Mexico[4] and Guatemala.[5] Although the crude point prevalence of MSK pain (11.9%), rheumatoid arthritis (RA; 0.7%), osteoarthritis (OA; 2.8%), and gout (0.01%) in Guatemala was intriguingly less compared to that in other Latin American countries (Table 1), nonetheless it represents a significant burden of rheumatic disorders in the community. The frequency of low back pain was abysmally low, and no case of ankylosing spondylitis (AS) was reported. Most of the members of the community in Guatemala lead modest and hard lifestyles (labor-intensive) and probably do not consider low back pain important enough compared with other MSK pain and disorders (Abraham Kutzbach, personal communication). The frequency of HLA B27 is considered to be lower in the community and relatively fewer of cases of AS are seen (Abraham Kutzbach, personal communication). COPCORD Guatemala has reported a higher prevalence of MSK pain and disorders in the rural community.

A national COPCORD survey[4] of 19,213 people in 5 study sites (Chihuahua, Nuevo Leon, Sinaloa, Yucatan, and Mexico City) was recently carried out in Mexico. Although national prevalence statistics[4] were reported, there were obvious differences between study sites, for example, the minimum and maximum prevalence rates were 1% (Mexico City) and 2.8% (Yucatan) for RA, 2.5% (Sinaloa) and 20.5% (Chihuahua) for OA, 0.1% (Yucatan) and 0.8% (Chihuahua) for gout, and

TABLE 1. Prevalence (%) of MSK Pain and Selected Rheumatic Disorders in WHO ILAR COPCORD Surveys in Latin America (See Text for References and Details)

Country/Yr	México[8]/2002	Brazil[9]/2004	Cuba[10]/2005	Peru[11]/2007	México[4]/2011	Guatemala[5]/2012
Survey sample size	2500	3038	3155	1965	19,213	8000
MSK pain	23	30.9	43.9	46.5	25.3	11.9
Low back pain	6.3	NA	11.6	3.3	8.0	0.5
RA	0.3	0.46	1.24	0.5	1.49	0.7
OA	2.3	4.1	20.4	14.4	10.24	2.8
AS	NA	NA	0.1	0.4[a]	0.15	0.01[b]
Gout	0.3	NA	0.38	NA	0.35	0.01
STR	NA	NA	6.4	11.7	5[c]	1.56
FM	1.4	NA	0.2	NA	0.68	NA
Systemic lupus erythematosus	NA	NA	0.06	0.05	0.06	0.06[d]

[a]Spondyloarthropathy.

[b]One case of reactive arthritis.

[c]Rheumatic regional pain syndromes, for example, enthesitis.

[d]One case of systemic lupus erythematosus and 4 cases of undifferentiated collagen vascular diseases.

NA, not available in the published literature.

0.2% (Chihuahua) and 4.5% (Nuevo Leon) for undifferentiated inflammatory arthritis (IA), respectively. A high prevalence of MSK pain and related disorders was observed in urban areas and in conditions of social deprivation, such as the case of surveyed communities in Mexico City (43%) and Nuevo Leon (23%) compared to sites with significant rural population.[4]

Guatemala is a neighbor to southern Mexico and culturally close to its Yucatan province. The prevalence of nontraumatic MSK pain (19.6%), OA (6.8%), back pain (3.8%), RA (2.8%), rheumatic regional pain syndromes (2.3%), and gout (0.1%) in COPCORD Yucatan[13] were several times higher than those in Guatemala. The reasons for such glaring differences need to be investigated in sociocultural, anthropological, environmental, microbiologic, and immunogenetic studies.

A higher prevalence of MSK pain in COPCORD Guatemala[5] was reported in the rural community (urban, 9.3%; rural, 14.5%). However, in the neighboring Yucatan Mexico,[13] the prevalence of MSK pain was higher in the urban community (rural, 19%; urban, 27%), but unlike Guatemala, no differences were reported for the various rheumatic disorders. COPCORD Nuevo Leon,[14] a province in North Mexico, found a higher prevalence of MSK pain (14.8%) and several other rheumatic disorders including appendicular regional pain syndrome (8.3%), fibromyalgia (FM; 1.3%), and undifferentiated arthritis (3.9%) in the rural community, but the sample size of the rural population sample was much smaller compared to that of the urban sample. Few COPCORD surveys worldwide have surveyed neighboring rural and urban community using the same survey team and adequate sample size. COPCORD China[15,16] and Iran[17] did not report much difference, but COPCORD India[18] reported a significantly higher burden in the rural community.

Ill-defined aches and pains (IDS) and soft tissue rheumatism (STR) disorders are the predominant painful MSK disorders in a community as shown by COPCORD surveys worldwide.[2,18] In the absence of universal classification criteria, the nomenclature for IDS and STR varies and community data are difficult to compare. Surprisingly, the reported prevalence of STR from COPCORD Guatemala was only 1.6% (rural, 2.1%). In contrast, 5% (95% confidence interval [CI], 4.7%–5.4%) of the COPCORD survey population in Mexico were classified as having appendicular painful rheumatic syndrome as per a priori criteria, and most cases were found in the Mexico City area; one third of cases of nontraumatic limb pain remained unclassifiable.[19] To a large extent, the neglect for IDS and STR is due to our poor understanding of their etiopathogenesis and lack of clinically meaningful diagnostic approach. Day-to-day occupational microtrauma and overuse are likely to be important risk factors but are difficult to measure objectively.[18] Importantly, these disorders are amenable to nonpharmacologic measures and health education. The problems of diagnosis, burden, and impact of these common disorders were first highlighted by COPCORD India.[7,18,20]

Fibromyalgia (FM) has been consistently searched for in several COPCORD.[2] Unlike other Latin America communities, a fairly high burden of FM was reported by COPCORD Mexico[4]; a maximum prevalence of 1.7% was reported in Mexico City. Although the extent of soft tissue aches and pains seemed significant, no case diagnosed as FM was reported by COPCORD Guatemala.[5]

Inflammatory arthritis and rheumatism are the bedrock of rheumatology. Fewer than 10% of the members of the community in COPCORD India[18] experienced some form of IA, and a significant proportion remained undifferentiated. The prevalence of RA in Mexico and Cuba (Table 1) was strikingly high. In COPCORD Yucatan,[13] 2.8% (95% CI, 2.3%–3.3%) of the members of the community experienced RA. A non-COPCORD survey of 26,691 subjects in the San-Louis Potosi region (Mexico) reported RA prevalence of 2.6%.[21] COPCORD Mexico[4] also reported a significant burden of undifferentiated IA. COPCORD surveys were not designed to target uncommon disorders such as lupus and other collagen vascular diseases. Interestingly, using population samples fewer than 5000, several Latin America COPCORD surveys have reported lupus (prevalence, ~0.06%), which is a significant contribution toward the epidemiology of rheumatic disorders in this part of the world.

Finally, after almost 30 years of global experience and success, COPCORD stands vindicated. Nobody has paid more heed to the woe of aches and pains in the community than the WHO-ILAR COPCORD.[22] Pain in the last 7 days (80.1%), pain score higher than 4 in the visual analog scale (62.7%), health

assessment questionnaire scores higher than 0.8 (88.9%), physical limitation (88.1%), and known previous diagnosis (89.8%) provided the best specificity to the CCQ for identifying rheumatic disorders in the community in COPCORD Mexico.[23] The CCQ can help patient obtain a timely diagnosis (and early treatment by the rheumatologist) and reduce burden of specialist services.

The COPCORD Latin America investigators might collate their results and encourage other countries in the region to carry out COPCORD and fill the gaps in the epidemiology of MSK pain and rheumatic disorders. COPCORD stages 2 and 3 should be begun. Based on identification of risk factors and probable etiologies, community health education and intervention programs (control) can now be initiated. Cigarette smoking (odd ratio, 1.6; 95% CI, 1.4–2.0; $P < 0.001$) was found to be significantly associated with nontraumatic MSK pain in COPCORD Mexico.[4] Oral tobacco use has been repeatedly found to have a significant association with MSK pain in COPCORD India.[7,24] COPCORD must fuel public health programs in rheumatology.

One of the advantages of a convenience sample (COPCORD survey) is that nobody in the neighborhood is left out, and community-friendly comprehensive rheumatology services (diagnosis, treatment, and control) can be started immediately after the survey. COPCORD Bhigwan[7,17] is in its 17th year of community service and provides free-of-cost therapy guidance to more than 100,000 individuals residing in about 250 villages and small towns in the region and conducts continuing medical education programs for rural physicians. Although not envisaged earlier, COPCORD may well help develop rheumatology services in the community in developing countries where rheumatology is an unrecognized and underserved specialty.[25]

REFERENCES

1. Muirden KD. The origins, evolution and future of COPCORD. *APLAR J Rheumatol*. 1997;V1:44–48.

2. Chopra A, Abdel-Nasser A. Epidemiology of rheumatic musculoskeletal disorders in the developing world. *Best Pract Res Clin Rheumatol*. 2008;22:583–604.

3. Available at: http://www.copcord.org.

4. Peláez-Ballestas I, Sanin LH, Moreno-Montoya J, et al. Epidemiology of the rheumatic diseases in Mexico. A study of 5 regions based on the COPCORD methodology. *J Rheumatol Suppl*. 2011;86:3–6.

5. Ariel Obregón-Ponce A, Iraheta I, García-Ferrer H, et al. Prevalence of musculoskeletal diseases (MSKD) in Guatemala. COPCORD study of 2 populations. *J Clin Rheumatol*. 2012;18:170–174.

6. Chopra A. The WHO ILAR COPCORD Bhigwan (India) model—foundation for a future COPCORD design and data repository. *J Clin Rheumatol*. 2006;25:443–447.

7. Chopra A, Saluja M, Patil J, et al. Pain and disability, perceptions and beliefs of a rural Indian population: a WHO-ILAR COPCORD study. *J Rheumatol*. 2002;29:614–621.

8. Cardiel MH, Rojas-Serrano J. Community based study to estimate prevalence, burden of illness and help seeking behavior in rheumatic diseases in Mexico City. A COPCORD study. *Clin Exp Rheumatol*. 2002;20:617–624.

9. Rodriguez-Senna E, De Barros LP, Silva EO, et al. Prevalence of rheumatic diseases in Brazil: a study using the COPCORD approach. *J Rheumatol*. 2004;31:594–597.

10. Reyes-Llerena G, Guibert-Toledano M, Penedo-Coello A, et al. Community based study to estimate prevalence and burden of illness of rheumatic diseases in Cuba: a COPCORD study. *J Clin Rheumatol*. 2009;15:51–55.

11. Gamboa R, Medina M, Acevedo E, et al. Prevalence of rheumatic diseases and disability in an urban marginal Latin American population. A community based study using the COPCORD model approach. *Arthritis Rheum*. 2007;56:816.

12. Bennett K, Cardiel MH, Ferraz MB, et al. Community screening for rheumatic disorder: cross cultural adaptation and screening characteristics of the COPCORD Core Questionnaire in Brazil, Chile, and Mexico. The PANLAR-COPCORD Working Group. *J Rheumatol*. 1997;24:160–168.

13. Alvarez-Nemegyei J, Peláez-Ballestas I, Sanin LH, et al. Prevalence of musculoskeletal pain and rheumatic diseases in the southeastern region of Mexico. A COPCORD-based community survey. *J Rheumatol Suppl*. 2011;86:21–25.

14. Rodriguez-Amado J, Peláez-Ballestas I, Sanin LH, et al. Epidemiology of rheumatic diseases. a community-based study in urban and rural populations in the state of Nuevo Leon, Mexico. *J Rheumatol Suppl*. 2011;86:9–14.

15. Wigley RD. Rheumatic disease in Han Chinese. What have we learned from 19 years of epidemiological study? *J Rheumatol*. 2003;30:2090–2091.

16. Zeng QU, Chen R, Darmawan J, et al. Rheumatic diseases in China. *Arthritis Res Ther*. 2008;10:R17.

17. Davatchi F, Banihashemi AT, Gholami J, et al. The prevalence of musculoskeletal complaints in a rural area in Iran: a WHO ILAR COPCORD study (stage I, rural study) in Iran. *Clin Rheumatol*. 2009;28:1267–1274.

18. Joshi VL, Chopra A. Is there an urban rural divide? Population surveys of rheumatic musculoskeletal disorders in the Pune region of India using the COPCORD Bhigwan model. *J Rheum*. 2009;36:3.

19. Alvarez-Nemegyei J, Peláez-Ballestas I, Rodríguez-Amado J, et al. Prevalence of rheumatic regional pain syndromes in adults from Mexico: a community survey using COPCORD for screening and syndrome-specific diagnostic criteria. *J Rheumatol Suppl*. 2011;86:15–20.

20. Chopra A, Saluja M. Validation and usefulness of Indian version (CRD Pune) health assessment questionnaire: Drug trials, community practice and COPCORD Bhigwan population study (1994–2012). *Indian Journal of Rheumatology*. (2012), doi:10.1016/j.injr.2012.04.009.

21. Abud-Mendoza C, Sánchez-Arriaga A, Martínez-Martínez M. Prevalence of chronic rheumatic diseases in Mexico. *J Rheumatol*. 2011;38:2076.

22. Chopra A. COPCORD—an unrecognized fountainhead of community rheumatology in developing countries. *J Rheumatol*. 2004;31:2320–2323.

23. Goycochea-Robles MV, Sanin LH, Moreno-Montoya J, et al. Validity of the COPCORD Core Questionnaire as a classification tool for rheumatic diseases. *J Rheumatol Suppl*. 2011;86:31–35.

24. Chopra A, Chaturvedi S, Saluja M, et al. Oral tobacco use is significantly associated with rheumatic musculoskeletal (RMSK) pain: result of a WHO ILAR COPCORD (Community Oriented Program for Control of Rheumatic Diseases) rural population study in India. *Arthritis Rheum*. 2010;62:1551.

25. Chopra A. Community rheumatology in India. A COPCORD driven perspective. *Indian J Rheumatology*. 2009;4:119–126.