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PREVALENCE OF OSTEOARTHRITIS IN URBAN BIKANER POPULATION IN WESTERN RAJASTHAN: A WHO ILAR COPCORD STUDY

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ABSTRACT

Background*:*-COPCORD (Community oriented program from control of rheumatic diseases) is a global initiative of the WHO/International League of Associations from Rheumatology (ILAR). The prevalence data from Urban Area, Bikaner District, and North-Western Rajasthan Carried out in 2008-09, is presented.

Aim*:*- to study the urban prevalence of osteoarthritis in population of western Rajasthan Bikaner.

Methods*:*-A cross-sectional survey of the urban population of Bikaner (non-randomized selection) was completed in five weeks, using validated questionnaires, served by trained volunteers. 356 patients (7.12%) were identified (Phase 1) from 5000 adults, and systematically evaluated (Phase 2 and 3) by a medical team, including a rheumatologist; limited investigations were carried out and diagnosis confirmed during a planned 12 week initial follow-up. Standard clinical criteria were used for the diagnosis; point prevalence estimates (prev) are shown in parenthesis.

Result*:*-There was a dominant distribution of 'pain at all sites' (articular/soft tissues) in the females (5.06%) as compared to male(2.06%). Among 356 patients of rheumatic musculoskeletal disease , the osteoarthritis was diagnosed in 183 patients which comprises the 51.4% (females 41.1%; males 20.3%) and remaining 48.6% joint pain was due to other rheumatic musculoskeletal disorder . The prevalence of osteoarthritis in general population was 3.66% (as compared to Bhigwan 5.8% and as compared to 95% CI 1.5-2.7)

Conclusion:-The Bikaner COPCORD survey demonstrates a significant urban spectrum of rheumatic musculoskeletal disorder (RMSD). It provides a reasonable speculation about the Indian rheumatological burden with osteoarthritis which scoring first rank**.**

INTRODUCTION

In 1981, World Health Organization (WHO) and International League of Associations for Rheumatology (ILAR) launched a special program for rheumatic diseases called COPCORD (Community Oriented Program for Control of Rheumatic Disease)[1]. It's objective was to acquire

data on the prevalence of rheumatic-musculoskeletal symptoms/diseases (RMSD), along with their disability, in particular from the rural communities in the developing countries. COPCORD was to target the needs of the community rather than define specific diseases/syndromes. The COPCORD epidemiological model envisages three stages – collection of prevalence data (I), identification of risk factors (II), and control of "risk factor" and improved health care primarily through health education (III). In stage I, which is essentially a population survey, the data is conventionally collected in three successive phases – population demography and identification of patients with RMSD (Phase 1), detail record of patient's narration of history and symptomatology, and functional disability (Phase 2), and a detail rheumatological evaluation (Phase 3). The COPCORD model advocates a low cost structure utilizing available ground resources with minimal use of investigations (for diagnosis). Numerous Asian Pacific countries have completed COPCORD survey [2,3]. Under the aegis of APLAR (the Asia-Pacific League of Associations for Rheumatology), the first Indian COPCORD survey was conducted Bhigwan (Dist Pune) in 1996[4]

The current report presents the final results of Stage 1, phase 3 of the Bikaner (urban) COPCORD survey, and compare them with the results of the COPCORD rural surveys from Bhigwan (India) [5], North China [6] and Indonesia[7]and urban Australia (Wigley, 1994). Detail Bhigwan survey methodology, including the questionnaires used, have been published (Chopra et al., 1997). Detail diseases descriptive of patients were excluded to keep this report concise.

MATERIAL AND METHODS

Bikaner District is situated North-Western Rajasthan. The area selection was randomized and guided by senior co-workers (HST), a doctor divided into 4 areas (Lalgarh, Kailash Puri, Karni Nagar and PuraniGinnani). The census state 1 survey was completed in 2008. Over 12 week period where by all the 3 phases were carried out concurrently, total population surveyed was 5000. The COPCORD medical team included one rheumatologist (AC), MBBS Doctor, medicine residents, educated volunteers (age group 19-40 year) from the urban area after training served COPCORD health workers (CHW). The questionnaires were served in Hindi language through personal interviews by the CHWs. In Phase 1 questionnaire, the respondent recorded general demographic data, past and current RMSD, and other medical problems. Besides a human manekin for marking the painful sites, the Phase 2 questionnaire contained queries regarding community concepts, socioeconomic effects, health assessment (HAQ) in terms of functional impairment, medical resources and therapies used. The HAQ [8] used was modified to cater to the Indian customs of daily living (e.g. squatting and sitting cross legged) and livelihood (e.g. cycling and bullock carts for transportation). The total HAQ score (maximum 24) was averaged for eight activities; arbitrarily classified into mild (0-0.9), moderate (1-1.9) and severe (2-3). Respondents with past or current RMSD completed Phase 2 questionnaire before the final rheumatology evaluation. Each patient was classified with a provisional diagnosis by AC following the clinical evaluation; investigations were ordered when indicated. A facility for ESR, hemogram, and urinanalysis was set up in the area. Other relevant investigations (e.g. rheumatoid factor (RF), ASO, X-ray LS spine, serum uric acid etc.) were carried out in centre for rheumatic diseases (CRD), S.P. Medical College, Bikaner all serum samples were stored at -80°C, even after testing.

Follow Up*:* The survey patients were systematically re-evaluated during the initial 12 week post survey period. The diagnosis was finalized, sometimes after reviewing the lab results. During the

late follow up program, the COPCORD medical team continued to visit the village every 3-4 weeks. Treatment was begun and closely monitored.

Disease Classification And Database: In case of chronic non inflammatory knee pain the diagnosis of OA was based on presence of either of the following features – significant crepitus, restricted range of movement, varus deformity, palpable medical joint line tenderness, palpable osteophytes, skiagrams were referred to when available. Though the survey database has been continuously reviewed, the number of patients (identified during the survey) remained constant. Our study diagnosis/disease classification format ensured comparability with other COPCORD studies.

Statistics: All individuals > 15 years age have been considered as adults. Point – prevalence-estimates (prev) have been calculated on a survey population of 5000. The 95% confidence intervals ($z\alpha$=1.96) for prev was calculated using the method for ratios and proportions[9].

Results: Basic urban demographics: A total of 5000 subjects were surveyed, 4995 were adults (49.02% were females and 50.88% were males). The age distribution of the Bikaner surveyed subjects in this study is compared to the 2001 Indian census population (Fig. 1).

Osteoarthritis: Among 356 patients of rheumatic musculoskeletal disease, the osteoarthritis was diagnosed in 183 patients which comprises the 51.4% (females 41.1%; males 20.3%). The prevalence of osteoarthritis in general population was 3.66% (as compared to Bhigwan 5.8% and as compared to 95% CI 1.5-2.7)(Table 3) : The prevalence (Table 3) includes all forms of OA-knee, spinal and primary generalized.

DISCUSSION

A wide spectrum of RMSD is seen in the Indian subcontinent. The likely socio-economic impact of these diseases has been made evident by WHO-COPCORD surveys in several developing countries (Muirden,1997; Wigley,1994). The current report on Bikaner urban survey is an eye opener for several reasons other than the prevalence statistics. These results shift the focus away from hospital referral practice to the grass root rural community. The problems of diagnosis, especially with reference to lack of disease markers in rheumatology, and the dominant community problems (STR, OA and SRD) are highlighted.

Epidemiological information on rheumatological diseases is sparse in india[10]. As compared to first Indian rural COPCORD study (Bhigwan) (Chopra et al., 2001)), prevalence of disease is less (7.12% vs 18.2%) similar to that study osteoarthritis dominated (3.66% vs 5.8%) but less prevalent when compared to Indian rural COPCORD study. STR was significantly less prevalent (0.04% vs 5.5%) in our study and RA was dominated (2.54% vs 0.51%). Genetic studies could not be performed in our study. Differences in the prevalence of RMSD from the Asian Pacific countries (Wigley, 1994) are bound to exist due to cultural and ethnic diversity, especially concerning occupation and living condition.

Dominant symptomatology in Bikaner study as compared to Bhigwan (Chopra et al., 2001)was knee pain (6.24% vs 12.7%) followed by pain at ankle/feet (3.28% vs 8.0%), significant less subjects complained of neck pain as compared to Bhigwan study5. Overall symptoms prevalence

was less as compared to Bhigwan study (Chopra et al.,2001) establishing the fact that prevalence and burden of the disease is much more in rural community as compared to urban community.

The Bikaner COPCORD, the Bhigwan COPCORD (Chopra et al., 2001) and Delhi study (Ganguly et al., 1997), though providing excellent projections of the likely osteoarthritis burdens of the Indian population, cannot be considered to represent the national scenario in to. A national task force for need to generate national statistics though pooled data.

Table 1: Survey Population (Phase 1) and patients Identified (phase 2): age-sex distribution (percent)

Age group (yrs)	Survey Population N=(5000)			Patients identified (n=356)		
	Male (n=2548)	Female (n=2452)	Total	Male (n=103)	Female (n=253)	Total (n=356)
1-14	0.08	0.02	0.10	0	0.30	0.30
15-24	10.2	9.1	19.3	1.40	1.40	2.80
25-34	10.5	11.2	21.7	2.20	7.30	9.60
35-44	12.0	12.7	24.7	3.70	17.10	20.80
45-54	9.5	7.7	17.2	6.20	17.40	23.60
55-64	4.6	4.5	9.1	6.20	14.90	21.10
>64	4.0	3.9	7.9	9.30	12.60	21.90

Figure 1: Comparison of identified population to the Indian population (2001 census) : age group distribution

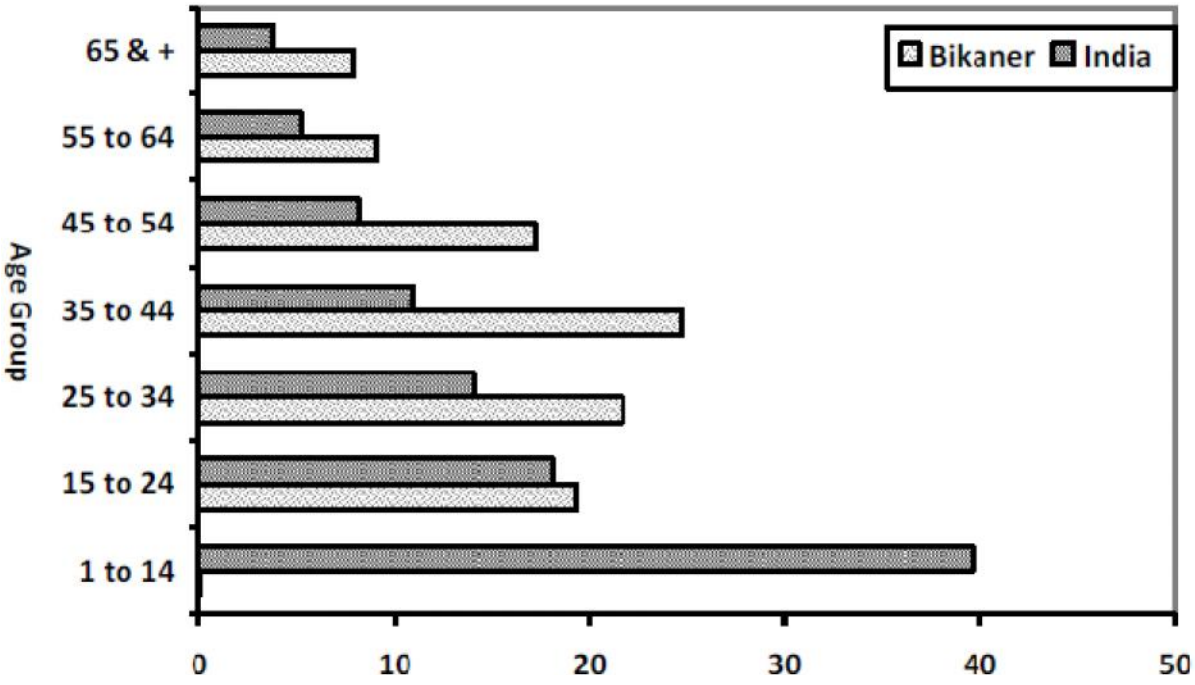

Table 2: Prevalence of rheumatic complaints by "site" in Bikaner urban and selected rural Asia- Pacific COPCORD surveys (percent)

Pain Location	Present Study			Bhigwan (India) (n=4092)	Indonesia (n=4683)	China (n=4213)	Australia (n=1437)
	Male (n=2548)	Female (n=2452)	Total (n=5000)				
Pain any site	2.1	5.1	7.1	17.9	24	NA	NA
Neck	0.02	0.1	0.12	6.5	5.0	4.6	17.0
Shoulder	0.08	0.38	0.46	7.4	11.0	4.6	10.0
Elbow	0.12	0.24	0.36	5.9	10.0	4.0	6.3
Hand/Wrist	1.14	2.68	3.82	7.3	NA	NA	NA
Knee	1.76	4.48	6.24	12.7	12.2	27.0	15.0
Ankle/Feet	0.92	2.36	3.28	8.0	NA	NA	NA
Calf	0.00	0.08	0.08	6.5	NA	NA	NA
Thigh	0.00	0.08	0.08	NA	NA	NA	NA
Hip	0.00	0.08	0.08	NA	NA	NA	NA
Sole	0.00	0.08	0.08	NA	NA	NA	NA
Upper Back	0.00	0.00	0.00	7.9	5.3	1.5	6.2
Lower Back	0.00	0.00	0.00	11.9	15.1	28.0	22.0

Patients Phase 2 Data: A total of 356(7.1%) patients were identified of them 2.1% were males and 5.1% were females, all of them were adults. RMSD was the single dominant problem in the community. Both males and females suffered maximum with pain at the knee (females 4.8% males 1.76%) followed by pain at hand wrist with female dominance (2.68% Vs 1.14%).

Table 3: Osteoarthritis in urban Bikaner, comparable rural Asia pacific COPCORD and Delhi survey: point prevalence estimate

Study name	prevalence
Present study	3.66
Bhigwan (India)	5.80
Delhi (India)	1.89
Indonesia	5.10
China	-
Australia	8.20

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