

Articular chondrocalcinosis in Saudi Arabia

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ABSTRACT

Objectives: To investigate the prevalence of articular chondrocalcinosis in subjects aged 50 years and above in a radiographic survey through 14 primary care clinics in North Riyadh, Kingdom of Saudi Arabia.

Methods: Over a period of 7 months extending from September 1998 to March 1999, 153 patients attending 14 primary care clinics in North Riyadh, Kingdom of Saudi Arabia, were interviewed, examined and then requested to have radiographs of knees (anteroposterior and lateral), wrists and hands. The x-rays were read for the presence of chondrocalcinosis.

Results: One hundred and fifty three subjects over the

age of 50 years (90 males, 63 females) completed the requested x-rays. Six (3.9%) cases of articular chondrocalcinosis were identified in the whole age group (50-93). When age group above 60 are considered, the prevalence rises to 6.7%.

Conclusion: We conclude that chondrocalcinosis is not rare in Kingdom of Saudi Arabia and increases with advancing age.

Keywords: Chondrocalcinosis.

Saudi Med J 2002; Vol. 23 (5): 577-579

Articular chondrocalcinosis was first described by Sitnan.¹ These articular hyaline and fibrocartilagenous calcifications are the results of deposition of calcium pyrophosphate dihydrate crystals (CPPD) in these structures. Chondrocalcinosis increases with advancing age.^{2,3} Familial cases occurring at younger ages are well recognized.³⁻⁶ The preferred sites for deposition of these crystals are usually knees and wrists. The estimated prevalence of chondrocalcinosis among the elderly varies between 6% and 34%.⁷⁻¹³ This broad range is due to the fact that some of the studies were hospital based and utilized patients presenting with joint pain while others were based on pathological specimens. Our study was a cross-sectional study in which patients attending the primary care clinic for different medical complaints were studied for the presence of articular chondrocalcinosis regardless of their presenting complaint.

Methods. During the period from September 1998 to March 1999, 14 primary care clinics in North Riyadh,

Kingdom of Saudi Arabia (KSA), were asked to participate in a study to assess the prevalence of different rheumatic diseases in the community. The study was approved by the local area ethics committee. Patients attending the clinic with any medical condition were invited to enroll in the study. This involved enrolling the first attendant aged 20 years and above per day. A formal consent was obtained for each patient in the study. Their ages, sex, reason for attending the clinic, rheumatic complaints were recorded. This was followed by a rheumatological examination and x-ray evaluation of knees (antero-posterior and lateral views), wrists and hands. For the purpose of this study on chondrocalcinosis, only those aged 50 years and above were included in this study, as sporadic chondrocalcinosis was known to be rare below this age. The radiographs were assessed by the Rheumatologist and Skeletal Radiologist. Chondrocalcinosis was searched for in radiographs of knee articular cartilages, menisci, wrists, triangular ligaments, carpi, and metacarpophalangeal joints.

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Received 28th October 2001. Accepted for publication in final form 1st January 2002.

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Chondrocalcinosis was diagnosed by the presence of hazy, dense, stippled or linear calcification in the articular cartilage or the fibrocartilagenous structures. Chondrocalcinosis was confirmed by its presence in any of the joint sites above. Simple descriptive statistics were used to analyze the data and the comparison with other studies was carried out by utilizing t-test and z-test of proportions drawn from 2 samples.

Results. Out of 487 patients recruited, 200 patients were aged 50 years and above. Fifteen patients declined our request to participate in the study and 32 did not complete the radiographic investigations. The remaining 153 patients completed the radiographic investigations. There were 63 females and 90 males. The age range was 50-93 (mean 62.3 ± 8.5) (**Table 1**). Six cases [3.9% (4 males, 2 females)] of chondrocalcinosis were seen. Their ages, sex, reason for attending the clinic and x-ray findings are illustrated in **Table 2**. It shows that the knees were affected bilaterally in all of the cases. However, the triangular ligament of wrists was affected in only those who were older (one aged 78 and one was 90-year-old). No calcification was found in hand or carpal joints. Chondrocalcinosis was seen only in those aged 60 years and above. The mean age of those with chondrocalcinosis was 71.7 ± 10.4 . If we consider the patients aged 60 and above only, the prevalence was 6.7%. Although, the vast majority of patients attended the primary care facilities for complaints not related to their joints, on questioning about the experience of knee pain at any time in the past, knee pain was admitted by 5 out of 6 patients in the chondrocalcinosis group and 128 out of 147 without chondrocalcinosis. The difference did not reach statistical significance ($P = 0.78$). However, one of the 5 patients in the chondrocalcinosis group had acute episodes of swelling and pain of knees suggestive of pseudogout while none of the non-chondrocalcinosis group had such an occurrence.

Discussion. In this group of individuals, a prevalence of 3.9% of articular chondrocalcinosis was obtained in those aged 50 years and above. The prevalence

figures in those aged 60 years and above rises to 6.7%. Previous studies elsewhere were carried out mostly in hospitals, rheumatic diseases clinics or homes for the elderly and showed prevalence rates of 6-34%.⁷⁻¹⁰ Two general population surveys of chondrocalcinosis in the elderly came up with prevalence rates of 8% and 16%.^{11,12} The largest was carried out by Felson et al¹² on 1425 subjects aged 63-93 (mean 73) in the Framingham study, and had a prevalence of 8%. Although, this figure is significantly higher than our overall prevalence of chondrocalcinosis in the whole group, it is not significantly different from our prevalence rate of 6.7% for those 60 years and above ($P = 0.635$). Our prevalence of 3.9% is significantly less than the 10% prevalence found by Sanmarti et al³ ($P < 0.005$) utilizing attendees of primary care centres for different medical problems. Again, this prevalence was not significantly different from our prevalence rate of 6.7% for those individuals 60 years and above ($P = 0.305$). The setting of our study was similar to the latter in that we utilized individuals attending primary care centres with any medical condition. The mean age of participants in their study was 68 ± 5.8 . In our study, we interviewed patients 50 years and above, with a mean age of 62.3 ± 8.5 which was significantly lower than their group mean age ($P < 0.00001$). This significant age difference may explain our lower rate of prevalence of chondrocalcinosis since it is dependent on age. A recent hospital based study of articular chondrocalcinosis in Kuwait found a prevalence rate of 2%.¹⁴ Their patients presented to the study hospital with arthritis of knees. However, their age range was 45-80 years with a mean of 50. The slightly lower figure in that study may be explained by their patients of younger age. Although, the Kuwaiti study was hospital based, the estimated prevalence was not significantly different from ours ($P = 0.362$). Chondrocalcinosis has been reported previously to be more common in females.¹⁰⁻¹³ Others had reported male predominance.⁹ In our study, more cases of chondrocalcinosis were seen in males which may be the result of more males being represented in our study due to the fact that males are more mobile and easier to convince to carry out investigation in our conservative society and due to easier access for the authors, being males, to

Table 1 - Sex and age distribution of studied subject.

Age (years)	Male	Female
50-59	29	33
60-69	39	20
70-79	19	8
80-89	1	1
90 +	2	1
Total	90	63

Table 2 - Chondrocalcinosis cases: age, sex, presenting complaint and x-ray finding.

Case	Sex	Age	Presenting complaint	Chondro knees	Chondro wrist
I	Male	90	Leg and knee pains	Bilateral	Bilateral
II	Male	78	Knee pain	Bilateral	Bilateral
III	Male	67	Diarrhea	Bilateral	None
IV	Male	64	Upper respiratory tract infection	Bilateral	None
V	Female	67	Pain, right side of body	Bilateral	None
VI	Female	64	Knee pain	Bilateral	None

interview and recruit males in the segregated male and female clinics. This bias in recruitment towards male patients led to their over representation in our sample and may have increased the chondrocalcinosis pick-up rate in males over females. Another factor which may have led to the lower prevalence rate in females in our group is the lower age of the female group (mean age of female 65.5 ± 2.1 versus mean age of males 74.7 ± 11.8).

In conclusion, articular chondrocalcinosis in KSA subjects is not rare and rises with age.

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