EPIDEMIOLOGICAL PROFILE OF PATIENTS WITH CALCIUM PYROPHOSPHATE DEPOSITION (CPPD) DISEASE AT A TERTIARY HOSPITAL

Adriana Cristiane Machado^{1,*}, Renata Maria Monteiro Pinto¹, Barbara Luzia Berredo Reis Alexandre¹, Marina de Azevedo Martins¹, Paula de Medeiros Nacácio e Silva¹, Stan Richard Medeiros de Souza¹, Renata Ferreira Rosa¹, Rina Dalva Neubarth Giorgi¹

1. Instituto de Assistência Médica ao Servidor Público Estadual, São Paulo (SP), Brazil.

*Corresponding author: drimachado89@hotmail.com

BACKGROUND

Calcium pyrophosphate deposition (CPPD) disease is an arthropathy caused by calcium pyrophosphate dihydrate (CPP) crystal deposits in articular tissues, most commonly fibrocartilage and hyaline cartilage. According to the European Alliance of Associations for Rheumatology (EULAR), four different clinical presentations can be observed: 1) asymptomatic CPPD; 2) osteoarthritis with CPPD; 3) acute CPP crystal arthritis; 4) chronic CPP inflammatory crystal arthritis. Estimates vary, but CPPD appears to affect 4 to 7% of the adult population in Europe and the United States. Unfortunately, estimates of the prevalence of CPPD have been based on the presence of chondrocalcinosis (CC) identified by diagnostic imaging techniques such as radiography and not on clinical manifestations. In radiographic examinations that include the knees, pelvis, and wrist, CC is detected in 44% of patients older than 84 years of age. Moreover, metabolic conditions are well-established risk factors for CPPD, such as hyperparathyroidism, hypomagnesemia, hypophosphatemia, and hemochromatosis. This study aimed to describe the epidemiological profile of patients with CPPD disease at a tertiary hospital.

METHODS

This retrospective chart review study identified a total of 43 patients with a diagnosis of CPPD disease according to the presence of CC in the following locations on plain radiographs: menisci of the knee, triangular fibrocartilage of the wrist, shoulder, pubic symphysis, and atlanto-occipital joint. Demographic data including age, ethnicity and gender, as well as metabolic profile (PTH, TSH, magnesium, alkaline phosphatase, and iron panel) were collected.

RESULTS

Thirty-six of the 43 (83.72%) patients with CPPD were female, predominantly white (81.3%) and disease duration was 4.54 ± 2.87 years. The mean age was 75.7 ± 7.32 years, with 74.4% over 70 years old. Twenty-one (48.8%) CPPD patients had 2 or more sites of CC detected by conventional radiographs, and the knee was the most commonly affected (100%). Among the metabolic diseases, 14 (32.5%) had hypothyroidism, 13 (30.2%) hypomagnesemia, 1 (2.32%) hemochromatosis and 3 (6.9%) hyperparathyroidism. Predominant clinical manifestation was osteoarthritis with CPPD (88.3%), followed by chronic CPP inflammatory crystal arthritis (6.9%) and acute CPP crystal arthritis (4.6%).

CONCLUSION

Calcium pyrophosphate deposition disease in our population mostly affected elderly women, and was often found in the context of osteoarthritis. These findings underscore the possible overlap between CPPD and osteoarthritis. The most affected site for CC was the knee, and hypomagnesemia and hypothyroidism predominated as metabolic conditions. This disease is still an underdiagnosed entity and should always be remembered in elderly patients with chronic arthritis, especially of the wrists and knees.

KEYWORDS

Calcium pyrophosphate deposition disease, Chondrocalcinosis, Calcium pyrophosphate dihydrate, Epidemiological profile.