

## Chapter 6

# How to Identify Rheumatic Diseases by General Physicians

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### ABSTRACT

*A large part of the population in countries in process of development ignores what Rheumatic Diseases are, and general practitioners are in most cases unaware of enough information to identify them and the treatments to successfully control them. A proposal to help those general practitioners to detect if an articular condition belongs to a Rheumatic Disease case is to present them the clinical semiology that should lead them to redirect the given conditions to a specialist on the subject, a rheumatologist. The clinical semiology is presented by an automated algorithm inside a goal-based software agent, containing all the necessary information to identify the seven most common inflammatory Rheumatic Diseases, and fourteen of the non-inflammatory ones. The purpose of this tool is to provide the general practitioner with the correct information to redirect the patient with a rheumatologist, in order for it to receive the appropriate medication to be controlled.*

### INTRODUCTION

#### Project

This project is a field investigation, applied to medical area on the Rheumatology specialty related with Clinical Semiology and the Information Technology. It is in itself, an automated medical tool to identify joints affections, based on an Intelligent Agent from Artificial Intelligence specialty, based on the heuristic compilation of the tacit knowledge of rheumatologists. This study tries to associate the factors than relate the support process on Information Technology on a General Doctor, towards a modern tool as didactic software, which facilitates the most common rheumatic's affections identification.

DOI: 10.4018/978-1-5225-0248-7.ch006

## ***How to Identify Rheumatic Diseases by General Physicians***

This identify tool has a section of rheumatic inflammatory conditions and a section of rheumatic non-inflammatory conditions. Inflammatory conditions referred to joint. In the section of inflammatory conditions the user will find windows that include the different aspects of the joint disease that must be considered in diagnosis such as kind of onset, number and size of involved joints, topography of the arthropathy and symmetry of involvement. The section of non-inflammatory conditions considers only localized, regional and generalized involvement. Both sections follow a reasonable and logic algorithm that allows reaching diagnosis of the rheumatic conditions included in the diagnostic tool.

## **OBJECTIVE**

To value the utility of the algorithm for the identification of Rheumatic Affections” with a general practitioner, so that he will be able to provide an accurate diagnosis of joint diseases and redirect the patient with a rheumatologist for its early evaluation.

The proposed clinic semiology is based upon the human experience that is used to build a software agent didactic tool related to the Information Technologies; the software agent is a tool that allows the doctor to offer an appropriate evaluation of the rheumatic diseases.

## **BACKGROUND**

### **Rheumatic Diseases**

The study and management of rheumatic diseases in a rigorously scientific way has been in charge of the medical specialty of Rheumatology, a branch of Internal Medicine, since the middle of the 19th century, making it an medical area relatively new and this explains why, even in the beginning of the 21st century, rheumatic diseases are largely unknown both by the population in general and by doctors, who are not dedicated to this area of health.

Rheumatic diseases are heterogeneous clinical entities which affect musculoskeletal (Schumacher et al, 1998) system and other systems and organs, whose diagnosis often comes late due to little knowledge of these diseases and scarcity of rheumatologists, among other reasons (Taranta & Markowitz, 1981). Delay in diagnosis of these diseases may lead to damage of joints and related tissues, organs and systems with subsequent functional disability and increase in morbidity and mortality.

A person who suffers from a rheumatic disease that has affected the hip joint is facing a severe pain when attempting to walk. The first three or five steps walks with great difficulty, as it decreases the pain, once that it lessens can walk with less pain and greater agility. When attempting to stand the pain is so acute that it does not balance and when sitting drops the body waiting for that pain to decreases, spending time it dulls, but knowing that when get up again will face that terrible acute pain. When the joints of the hand are concerned it is very difficult to remove the lid to a jar, as pain does not allow you to force. If the person suffers from a knee, usually the cartilage that covers the joint decreases its thickness, staying in touch with the bone part, decreasing joint mobility and increasing pain to move it. Usually the patient will live with the pain articulates for a lifetime, with the probability that the joint will be merged and significantly decrease their movement, in such degree that it turns into a person with a

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