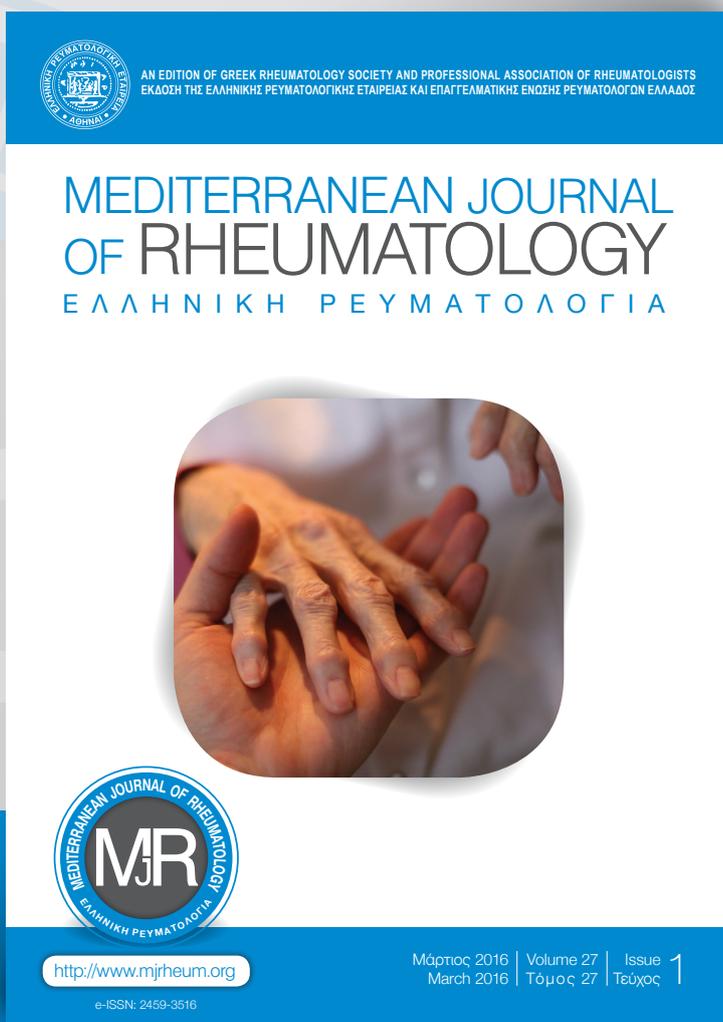

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The image shows the cover of the Mediterranean Journal of Rheumatology. At the top left is the logo of the Hellenic Rheumatology Society. To its right, the text reads: "AN EDITION OF GREEK RHEUMATOLOGY SOCIETY AND PROFESSIONAL ASSOCIATION OF RHEUMATOLOGISTS ΕΚΔΟΣΗ ΤΗΣ ΕΛΛΗΝΙΚΗΣ ΡΕΥΜΑΤΟΛΟΓΙΚΗΣ ΕΤΑΙΡΕΙΑΣ ΚΑΙ ΕΠΑΓΓΕΛΜΑΤΙΚΗΣ ΕΝΩΣΗΣ ΡΕΥΜΑΤΟΛΟΓΩΝ ΕΛΛΑΔΟΣ". The main title "MEDITERRANEAN JOURNAL OF RHEUMATOLOGY" is in large blue letters, with "ΕΛΛΗΝΙΚΗ ΡΕΥΜΑΤΟΛΟΓΙΑ" below it. A central photograph shows a close-up of a hand being examined. At the bottom left is the "MJR" logo. At the bottom right, the issue information is given: "Μάρτιος 2016 | Volume 27 | Issue 1" and "March 2016 | Τόμος 27 | Τεύχος 1". The website "http://www.mjrhumeum.org" and the e-ISSN "2459-3516" are also present.

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Juvenile Idiopathic Arthritis inside the Hippocratic Corpus

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ABSTRACT

Juvenile idiopathic arthritis is the most common rheumatic disease in children. Within the Hippocratic Corpus, it is recognized as a children's disease and its therapeutic treatment is thoroughly proposed. The fact is impressive that the exceptional observation skills of Hippocrates have brought results in the classification of the disease in oligoarthritis and polyarthritis, and in the recognition of the ways of invasion of the disease, acute-subacute-chronic with paroxysms. In therapeutic protocols, he used anti-inflammatory preparations, physiotherapy, hydrotherapy and electricity. The quota of the knowledge of the era with the beliefs in modern rheumatology is extremely evident.

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Keywords: Juvenile idiopathic arthritis, Hippocratic Corpus, oligoarthritis, polyarthritis, acute-subacute-chronic.

INTRODUCTION

Juvenile Idiopathic Arthritis (JIA) is the most common rheumatic disease in childhood. It is considered to be a disease of unknown aetiology. Although strong evidence suggests the autoimmune and auto-inflammatory pathogenesis of the disease, the diagnosis is being set by the exclusion of other diseases that are being displayed with arthritis in young people. The disease's variability is very high and the course and outcome vary depending on its form. Juvenile Idiopathic Arthritis is not a disease as benign as it was thought, since a significant proportion of patients present persistent and painful active disease, lingering with paroxysms which persist until adulthood, leading to functional limitation. Juvenile Idiopathic Arthritis is classified into 7 forms, according to starting type regarding the number of joints, the course of the disease and the presence or absence of some serological markers.^{1,2}

Hippocrates (460-377 BC) (**Figure 1**), with his systematic observation in younger people, had recognized the two main starting points of this arthritis, had tried to explain its reasoning through the pathogenetic theories of the era, and proposed a therapeutic approach, similar to the contemporary.³ This review attempts to decode the passages referred to JIA inside the Hippocratic Corpus, in an effort to replenish the knowledge of the time on the disease into the larger medical essay of ancient Greece. The Corpus



Figure 1. Hippocrates, portrait oil on canvas, by Chris Johnson.

Hippocraticum was a project with multiple authors, certainly more than one (Hippocrates, his students, later followers), and the views are scattered.⁴

JIA OLIGOARTICULAR-MONOARTICULAR ARTHRITIS

According to Hippocrates' and his followers' views, arthritis is derived from bile and mucus, based on the theory of the four humours, in the case when they are set in motion and settle in the area of the joints. When bile is gathered in the joints due an injury (disease) of the human body, stiffness is presented and the bile is mineralised.⁷ Hippocrates raises questions about whether the synovial fluid is sterile, "one has to consider about the nature of the fluid in the joints. Do they form the pus, or not?",⁸ indicating that he was capable, possibly via percutaneous puncture-intraarticular, to separate aseptic from septic arthritis (scent, taste, vision). The Hippocratic Corpus aptly stated, "those [people] suffer [because of the arthritis], from long-term fevers, presenting nodules (= cusps) or joint pain ... arthritis is not fatal ... but often leaves permanent damage".⁹⁻¹²

Regarding the treatment of arthritis in the Hippocratic Corpus, a number of pharmaceutical interventions are suggested. It should be noted, although it does not regard our study, that the interventions follow the principles of "elementary theory", the "theory of the four juices," but also the belief of the "physical and mental cleansing".¹³⁻¹⁴ For treatment, Hippocrates proposed, "we must [for the patient] to make use of cold patches, to relieve the abdomen of its internal materials by enemas or suppositories and to give to the patient drinks and beverages that are beneficial according to your opinion [physician's]. When pain is tender, administer a laxative, and then give him boiled milk serum (whey) or donkey milk to drink".⁵ He considers further that water and vinegar baths are beneficial, "vinegar ... for joints, has effects similar to those of the sea water and is effective in washing and vaporising applications".¹³ Thalassotherapy, fumigation and steam therapy have been known as various methods of treating diseases, even from the time of the Asclepieia.¹⁶ For stubborn, persistent and lingering cases, he recommended as a painkiller even the patient's sedation, "swelling and joint pain, no trauma ... are generally relieved with abundant cold shower, which reduces swelling and soothes pain, a moderate [use] of the narke (Greek: νάρκη) has the property to whisk away the pain".^{10,11,17}

Hippocrates, as confirmed by the peripatetic philosopher Clearchus of Soli (ca. 340-250 BC), the second most important ancient Greek physician after Hippocrates, by Claudius Galen of Pergamum (129-199 AD) and by the great biologist, botanist, zoologist and gastronome dietician Athenaeus the Nafkratitis (late 2nd to early 3rd century AD), the term "narke"

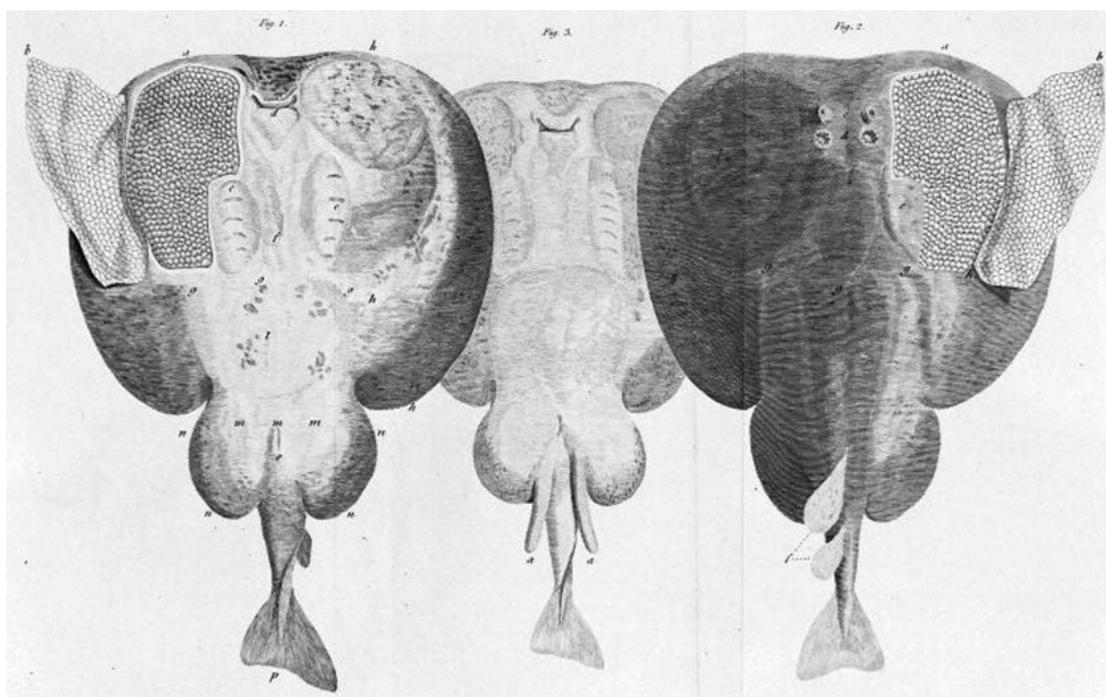


Figure 2. Torpedo fish, John Hunter, inside the treatise «Anatomical Observations on the Torpedo» to 1773.

refers to emitting electric ray fish, the “Narke” (torpedo fish, commonly moudiastra, Greek: μουδιάστρα) (**Figure 2**). Thus, he noticed that when you touch the fish, it causes electric shocks and numbness in humans, which is, probably, the first comment on the phenomena of animal electricity. Hippocrates handled this live electrical appliance as a very effective therapeutic agent in knee joints and cervical spine. Galen testifies that Hippocrates said that the “Narke” (narke in Greek means sopor) mitigates the intense pain and heals “the moderate of suffering”. The fact of the use of electricity for the treatment of arthritis confirms Scribonius Largus (1st century AD), who advised in cases of arthritis to place under the foot of the patient an alive nigra “Narke”, leaving it on the spot until the patient feel numbness throughout the leg until the knee, “by this process the pain is being eliminated for the time being, and the evil pain is confronted for the future”.¹⁸

Hippocrates ceased pains by prescribing the following: “for aching joints, put up in swollen joints poultice of salt mingled with water, and leave it tied there for three days; then when you remove it, you pound raw red nitro (soda ash) and a little honey and treat them like salt. For the same time period you put in a pot the crushed salt, and then you sprinkle with a little alum (astringent soil: contains possibly aluminium and hydrochloric acid), put the pot onto the fire, sprinkle again with salt

and alum and let it boil for a day and a night”, poultice is used with repeated use on joints during periods of paroxysmal pain.¹⁹ The fact that Hippocrates mentions the treatment of the acute phase inside his treatise “On the Diseases of Women”, is a strong indication that he knew the by gender incidence of the disease (Female> Male).

THE POLYARTICULAR FORM OF JUVENILE IDIOPATHIC ARTHRITIS

At the onset of this disease, when bile stops in the anatomical area of the joints, the clinical picture of the disease shows immediately: “formed swelling in the joints (polyarthritis) ... once again, the swelling is formed in other areas of the body, and then violent pains are presented. Most become lame from these disease, when the bile closed (blocked), inside the joints is petrified. The pain occurs intermittently, every three or four days”. For its prediction, Hippocrates distinguished this form from oligoarticular one, and argued, “but this disease is severe, and many came to their death,” noting the unfavourable outcome of the form of the disease “systematic with polyarticular course and destructive arthropathy” or “seropositive polyarticular” with those times and certainly not with current information.¹⁹

In the case of polyarthritis, the therapeutic approach is sustained and chronic, as is the disease; exactly

the opposite case of oligoarthritis' treatment, wherein particular paroxysms of pain are being targeted until final healing is achieved. To tackle it, Hippocrates originally proposed to treat pain: "when pains torment the body, you must treat fomentations after thorough rubbing with olive oil". After the pain subsides, the patient has to make a whole body steam bath and then to drink elleboro (Latin: helleborus niger). During the second day of the treatment, Hippocrates grants laxatives. The patient should begin to drink a defined volume of goat milk, half accompanied with honey and half with salt. In the evening, after purification, he must get to drink a fixed quantity of lentil and chard fat (Latin: beta) sprinkled with flour. Then he must eat chicken, pigeon, lamb or pig fat, and drink elleboro every six days. If the swelling persists and is located on his knees, a puncture of the knee joint is suggested, while stressing at the same time that is not allowed a puncture of any other joint, "if the swelling still persists, you must put a suction cup (Greek: βεντούζα) on one of the joints and then pull out some blood, by boring into the knees with a triangular needle. If the swelling is in the knees, you will not drill into any other joint".¹⁹ The therapeutic approach also includes a specific diet, mostly because of the chronicity of the disease. The young patient should have for breakfast cereals, very toasted bread and barley cake kneaded with oil and honey; for supper, baked hen without salt, or otherwise boiled, but the stock should be given to the patient without cheese, or sesame (Latin: sesamum orientale),

or salt. As for fish, he could be fed with fishes that have plenty of meat, baked in the same manner as the meat or stews, sprinkled with oregano (Latin: origanum) and smeared with olive oil. He could drink white wine, if he feels is good for him, or otherwise, drink black wine. If the season permits, he must constantly consume milk serum and fresh milk, and may even drink boiled donkey milk. The diet is supplemented with the necessary training and exercises, with walks during the morning and after the meals.¹⁹

If the outcome of the disease is a lingering chronic illness of the young patient, accompanied by depression symptoms, or a partial cure and relapses, Hippocrates provided hygienic and dietary instructions to prevent the disease's re-appearance: "if the patient is recovering well, he should be protected by the cold and the heat, and the food must not be excessive, because there is a risk of relapse". He stated that the disease has a long history, it could relapse, and may be fatal, even if its management began early, "this disease, with such a nursing treatment, it could be cured in six months, as during this time period, is being decided whether the disease is fatal or not, even if the treatment starts immediately."¹⁹

CONCLUSION

Within the Hippocratic Collection, juvenile idiopathic arthritis is described in its full clinical image and symptoms, its classification and forms are noted (although polyarticular is classified with the systemic

Table 1. Common features in Juvenile Idiopathic Arthritis between Hippocratic views and modern Rheumatology.

1. **Classification:** oligoarticular-monoarticular and polyarticular
2. **Forms-phases:** acute, sub-acute, chronic (and relapse phase)
3. The gender impact **Female > Male** is recognized
4. The **pernicious** outcome that creates chronic disabilities is recognized
5. The **morning stiffness** is recognized
6. **Mobilisation of the patient:** gait
7. The usual **occurrence points** (knee joints and cervical spine) are recognized
8. **Diagnostic puncture:** septic or aseptic collection followed by an exclusion diagnosis in ancient Greece, finding antigen, antinuclear antibodies and rheumatoid factor today
9. Pharmaceutical treatment: **topical anti-inflammatory agents** (based on the knowledge of the time)
10. **Physical Media:** hydrotherapy (thalassotherapy), physiotherapy, caloric diet, heated compresses, coldness with ice
11. **Use of electricity:** «Torpedo fish» in ancient Greece, transcutaneous electrical nerve stimulation TENS-method today

form), and its method of invasion and progress. Furthermore, its therapeutic treatment is presented in a way resembling modern rheumatic manuals (**Table 1**). The use of local electricity treatment is impressive, while many methods such as physiotherapy, hydrotherapy and anti-inflammatory action, are still in use today by modern physiatrists.

CONFLICT OF INTEREST

The authors declare no conflict of interest..

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