**Droglican® (Glucosamine/Chondroitin) Has an Efficacy Comparable to Celecoxib in Severe Osteoarthritis**

The results from MOVES study, a large multicenter clinical trial led by Bioiberica, have been recently presented in the OsteoArthritis Research Society International (OARSI) and the European League Against Rheumatism (EULAR) scientific congresses and have confirmed the efficacy and safety of Droglican® for the treatment of osteoarthritis in patients with severe pain.

The Multicentric Osteoarthritis interVEntion Study with Sysadoa (MOVES) was designed as an international multicentric, phase IV, double-blind, non-inferiority, randomized trial to compare the efficacy and safety of a fixed dose combination of glucosamine hydrochloride + chondroitin sulfate (Droglican®, Bioiberica S.A.) versus celecoxib in patients with symptomatic knee OA with moderate to severe pain.

606 participants were included from 42 medical centers in France, Germany, Poland and Spain, being one of the largest studies recently carried out in osteoarthritis. Eligible patients were aged 40 and above, had knee OA grade 2 or 3 radiographic severity and had a WOMAC pain scale of >301 units (0-500 scale). Patients with high gastrointestinal or cardiovascular risk were excluded, according to the contraindications associated to celecoxib. The primary outcome was the mean decrease in WOMAC Pain subscale after 6 months of treatment.

Both drugs reduced the WOMAC Pain subscale by 50% without significant difference between groups at the end of the study. Further, there was no difference in all secondary outcomes assessing patient’s pain, functional capacity, stiffness, inflammation, joint swelling, effusion, and overall quality of life.

Overall, there was similar rescue medication consumption in both arms, and no significant difference was found in the proportion of adverse events, that were mild and evenly distributed among treatment groups.

These results confirmed those from the NIH-sponsored trial published in the New England Journal of Medicine in 2006 (Clegg et al 2006), which suggested that the combination of glucosamine hydrochloride and chondroitin sulfate yielded significantly better results than placebo in severe pain patients. Moreover, Droglican® has shown a comparable efficacy to celecoxib, with a better safety profile, which is of critical importance in a chronic disease such as osteoarthritis, often concomitant to other comorbidities.

**PRIMARY EFFICACY OUTCOME:** WOMAC pain score after 6 months (comparison between groups). Celecoxib exerts a faster effect but reaches a plateau at month 4, without differences between treatments at the end of the study.
A new randomized, double-blind clinical trial has shown that chondroitin sulfate treatment attenuates brain response to painful stimulus on the knee in patients with osteoarthritis.

This interesting study, developed in the Rheumatology Department and the MRI Research Unit of the Hospital del Mar in Barcelona is a phase IV, randomized, double-blind clinical trial in which 64 knee osteoarthritis patients received chondroitin sulfate (Condrosan®, Bioibérica S.A.) 800 mg/day or placebo for a 4-month treatment course.

Patients were assessed at baseline and post-treatment by applying painful pressure on the patella surface and on the knee medial interline, during the acquisition of two fMRI sequences. The main outcome measurement was attenuation of the response evoked by knee painful stimulation in the pain-processing brain system. fMRI has proven its ability to comprehensively map brain activity associated with pain experience.

fMRI of patella pain, showed a larger activation reduction in the chondroitin sulfate group than in placebo in key regions of pain-processing network, as a posterior mesencephalon region including the periaqueductal gray (PAG), the primary somatosensory cortex (including the cortical representation of the leg) and extending to the primary motor cortex and posterior supplementary motor area.

These results confirmed the analgesic effect of CS on knee pain, assessed by an objective imaging technique as fMRI. The observed positive treatment effect of CS is consistent with the known CS action on cartilage protection due to chondrocyte regeneration. In addition, this study yielded further support to the utility of fMRI to objectify treatment effects on OA pain.

Brain fMRI images taken during patella test at baseline (Pre) and after 4 month-treatment with chondroitin sulfate (Post), showing attenuation of brain response in key regions of pain-processing network.


Glucosamine hydrochloride can reduce the need for NSAID treatment on patients with knee osteoarthritis, according to a large observational study.

The researchers conducted an analysis over a 1-year follow-up period, on data sourced from the French Disease Analyzer database. The primary measure was the NSAID-sparing effect produced by Structoflex® (prescription drug based on glucosamine hydrochloride licensed by Bioibérica S.A.) compared with a matched control group.

A total of 11,722 patients were included in the analysis (436 and 11,336 patients in the Structoflex® and control groups, respectively). Significantly more patients who were receiving an NSAID at the time of starting Structoflex® discontinued their NSAID treatment during the follow-up period compared with patients in the control group. During the 1-year follow-up period, the total mean duration of NSAID prescription and the mean number of days (calculated using Defined Daily Dose) on NSAID were also significantly lower in Structoflex®-treated patients compared with control group patients.

This large “real world” analysis demonstrated a significant NSAID-sparing effect of glucosamine in patients with knee OA.

According to the promising results of a new study, long-term use of chondroitin sulfate may reduce the need for total knee replacement.

Knee osteoarthritis is the most common indication for total knee arthroplasty, which drives a considerable part of the expenses related to the clinical management of these patients. Therefore, reducing total knee replacement could be considered an interesting outcome for any osteoarthritis therapy.

In order to determine the association between the use of chondroitin sulfate and the need for this type of surgery, an analysis was carried out on data sourced from SIDIAP. This is a public database that includes registers of more than 3400 general doctors, pharmacy invoice data and hospital admissions from Catalonia (North-East Spain), being representative of an 80% of the total population (>5 million of patients).

The use of 800 mg/day of chondroitin sulfate (Condrosan®/Cartexan®, Bioiberica S.A.) during 6 and 12 months was analyzed to study its association with the need for knee prosthesis. Propensity scores matching were used to minimize the bias due to confounding factors. This method has been shown to replicate randomized controlled trial results using electronic medical records data. Preliminary results show a significant reduction of the risk of knee replacement in patients treated with Condrosan®/Cartexan®, namely 13% after 6 months of treatment and 23% after 12 months of treatment.

These results coming from a large and highly representative sample are consistent with previous findings that also suggested a reduction of total knee replacements in patients treated with chondroitin sulfate (Raynauld et al. 2013), and provide new evidence about the structure-modifying effect of the molecule.

Bioiberica Launches ARTHROTEST®, the First DNA Test for the Prognosis of Knee Osteoarthritis

A simple saliva analysis identifies genetic changes associated with rapid disease progression.

Physicians can identify patients having the worst prognosis, those that are at greatest risk of needing short-term prosthetic surgery.

This information allows physicians to design personalized treatments and influence the disease progression, even reducing the need for prosthetic surgery, thus improving the patient’s quality of life. Furthermore, Arthrotest® allows Public Health Systems to save money (less testing for the best treatment, less sick leaves).

A world first: this clinically tested, groundbreaking product has an excellent precision level (82%) and has been designed by Bioiberica Farma’s R&D team.
New Osteoarthritis Guidelines in 2014

This year 2014 has been intensive regarding the publication of new guidelines for the osteoarthritis management. This fact has caused interesting discussions among the world’s most important rheumatologists, which is always positive and enriching from a medical and scientific point of view.

The new OARSI Guidelines were published in the March 2014 issue of Osteoarthritis and Cartilage, the OARSI journal. In contrast with the last edition of OARSI guidelines, 2014 edition questioned chondroprotective drugs efficacy: the authors described the utility of glucosamine and chondroitin sulfate as “uncertain” in terms of symptoms relief.

As a consequence, several key opinion leaders in rheumatology wrote letters and articles and sent them for publication to important journals. Among them we will remark:
- Prof. Patrick du Souich’s “letter to the editor” in Osteoarthritis and Cartilage, concluded that both drugs are the safest therapeutic option in the treatment of a disease such as osteoarthritis, with chronic nature and high morbidity.
- Prof. Yves Henrotin, who’s article “What is the current status of chondroitin sulfate and glucosamine for the treatment of knee osteoarthritis?”, published in the journal Maturitas (IF 2.844), clarified that OARSI experts don’t consider the term “uncertain” as a negative recommendation: uncertain doesn’t mean ineffective.

This last consideration from Prof. Henrotin was confirmed by Prof. McAlindon (author of the OARSI Guidelines) in his response to Prof. du Souich’s “letter to the editor”, and he agreed with Prof. du Souich that osteoarthritis pharmacological treatment should always be initiated with the drugs that minimize risks to the patient.

Just a few weeks after this controversy, the new ESCEO (European Society for Clinical and Economic Aspects of Osteoporosis and Osteoarthritis) Guidelines, were published in the journal Seminars in Arthritis and Rheumatism, and explicitly recommended chondroitin sulfate and glucosamine as background treatments for osteoarthritis. The authors also emphasized the importance of using pharmaceutical-grade chondroitin sulfate and glucosamine.

All these publications and discussions served to update data and conclusions about the benefits of the main chondroprotective drugs, chondroitin sulfate and glucosamine, regarding their efficacy and safety as background treatments for osteoarthritis.

Use of New Methods to Detect Adulterants in Chondroitin Sulfate

The discovery in 2013 that sodium hexametaphosphate (Calgon®) was being used as an adulterant of chondroitin sulfate re-opened the debate on the need for more precise methods for detecting new contaminants.

The steady increase in the price of chondroitin sulfate, the market of which is now worth about $1 billion per year, is the most likely reason for the appearance of new adulterants that are undetectable to some current methods used to analyse the purity of chondroitin sulfate. One such adulterant is sodium hexametaphosphate (Calgon®), a cheap, readily available industrial chemical product. This product, called Zero One (Z1) by some, may be hazardous to human health when ingested in certain amounts.

Since this adulterant was first detected in 2013, more selective methods have been tested to analyse the purity of chondroitin sulfate, given that the current assay test, cetylpyridinium chloride (CPC) titration, is not accurate enough to detect these compounds. The latest recommendations, which are now included in the USP monograph on chondroitin sulfate, advocate using enzymatic HPLC methods or cellulose acetate membrane electrophoresis (CAME), which are able to screen out adulterants (including familiar ones like sodium alginate and new ones like Z1).

Bioiberica naturally guarantees the purity of its own chondroitin sulfate and upholds the quality standards it has always been known for.