UNIVERSITY OF NAPLES

FEDERICO II



UNIVERSITY DEPARTMENT OF PUBLIC HEALTH

SECTOR OF ORTHOPAEDICS AND TRAUMATOLOGY

DOLAREN STUDY 2014:

Ozoile® (Ozone topical oleic acid stabilized with vitamin E acetate) vs Diclofenac

Person in charge for the study:

Prof. Carlo Ruosi

Napoli Federico II University Department of Public Health - Sector of Orthopaedics and Traumatology

INTRODUCTION

In Italy, 25% of the population suffers from chronic pain, of these, about 87% are not cancer related. The pathologies of the musculoskeletal system are the leading cause of chronic non cancer related pain. Osteoarthritis is a chronic disease mainly characterized by pain and physical disability, predominantly affects the hands, feet, knees, hip and spine.

Osteoarthritis of the knee (OAG) or knee OA, is a very common disease that affects 35-40% of the population and accounts for 75% of the diseases of rheumatic origin. Gonarthrosis arthropathy is a chronic evolution, in which the modifications of the articular cartilage leads inexorably to its degeneration with impairment of the sub-chondral bone.

It's possible to distinguish a primary osteoarthritis condition from a secondary one. Primary arthrosis, age, female gender, weight and genetic predisposition are the determining factors for the onset of the disease. In the secondary form, however, trauma is involved, overload and repetitive stress, arthritic diseases of various origins, bad alignments in the bone segments, low physical activity and muscle weakness.

The main symptom is pain during the active and passive movement, associated with crackling joints. Morning stiffness or prolonged immobility is another typical sign for this disease. In advanced cases there is limping, which not only affects the joint itself, altering the movement, if prolonged can cause overuse of other joints.

Pain is a dominant symptom in orthopaedic disorders. In most cases it is a somatic nociceptive pain, then based on the mechanism of reception, transmission and processing centre of a noxious stimulus, acute or chronic.

OBJECTIVES OF THE STUDY

Our study aims to compare the analgesic efficacy of therapeutic pathways topically made with Ozoile® in Dolaren® (a preparation based natural ozone topical oleic acid stabilized with vitamin E acetate, to combat inflammation and painful stages, rich of active ingredients) to diclofenac (nonsteroidal anti-inflammatory drugs - NSAIDs, and acetic acid derivative used as anti-inflammatory, anti-rheumatic and especially as an analgesic), in patients with knee pain from knee OA.

MATERIALS AND METHODS

We conducted a retrospective clinical study on patients with knee pain from knee OA.

We evaluated the data collected from the analysis of 100 consecutive patients (45 men, 55 women) who had been treated for knee pain from knee OA from 01.10.2013 to 09.01.2014 at the clinic of UOC Orthopaedics and Traumatology "Federico II" of Naples. The patients

analysed were treated, 50 for 8 weeks with Dolaren 50 mg, 1 application every 12h topically, and 50 with diclofenac 50 mg, 1 application every 12h topically.

The patients had performed three checkups at 2, 4 and 8 weeks of treatment.

At the first visit and at each check, each patient underwent clinical and compilation of survey data card containing:

- NRS (numerical rating scale of pain)

- WOMAC (Western Ontario and McMaster Universities Arthritis Index, a questionnaire used to investigate pain, stiffness and physical function).

Our study on patients treated included the following inclusion criteria:

- Value at the beginning of treatment NRS least 4

- Diagnosis of primary knee OA

-absence of concurrent or previous analgesic treatment in the last 8 weeks

- Adherence to the prescribed treatment and presence to all controls and completeness of clinical findings

Of the 100 patients, 87 of these met the inclusion criteria (41 men and 46 women).

Of these, 46 pcs had carried out the treatment with Ozoile ® in Dolaren® and 41 with diclofenac.

For the statistical analysis were taken into account only the results of the baseline visit and the visit to end treatment.

RESULTS

The results of the assessment of pain and function with stairs and WOMAC NRS are summarized in Tables 1 and 2.

GROUP A (Group of patients treated with Ozoile ® in Dolaren ®

	Initial Visit	**Tempo 2 (2 weeks)**	**Tempo 3 (4 weeks)**	**Tempo 4 (8 weeks)**
Scala NRS	**8,3**	**7.5**	**7.1**	**6.7**

Scala Womac	**48,1**	**33**	**30**	**28.5**

Table 1

GROUP B (Group of patients treated with Diclofenac)

	Initial Visita	**Tempo 2 (2 weeks)**	**Tempo 3 (4 weeks)**	**Tempo 4 (8 weeks)**
Scala NRS	**8.1**	**7.3**	**7**	**6.6**
Scala Womac	**47.7**	**31.9**	**29.3**	**27.8**

Table 2

After 8 weeks of treatment the mean values of the NRS and WOMAC scales were reduced significantly in both groups of patients.

For both parameters there was a significant difference between the baseline values and the values after 8 weeks of treatment. Considering the effect of the two treatments in terms of percentage and absolute improvement of the scores, there was no significant difference between the two preparations studied. The percentage of patients who responded to treatment was the same in both groups: all patients in the group treated with Ozoile ® in Dolaren® have reported a reduction in pain NRS of 80.72% (81.47% in group treated diclofenac) and an improvement in the WOMAC score of 59.24% (58.27% of patients in the group treated with diclofenac) .Both values were statistically significant. (Table 3 and Figure 1 and 2)

NRS WOMAC

	NRS		WOMAC	
	initial	8 weeks	initial	8 weeks
dolaren	8.3 ± 0.71	6.7 ± 0.9	48.1 ± 5.55	28.5 ± 6.13
diclofenac	8.1 ± 0.7	6.6 ± 0.69	47.7 ± 5.52	27.8 ± 5.51

Table 3

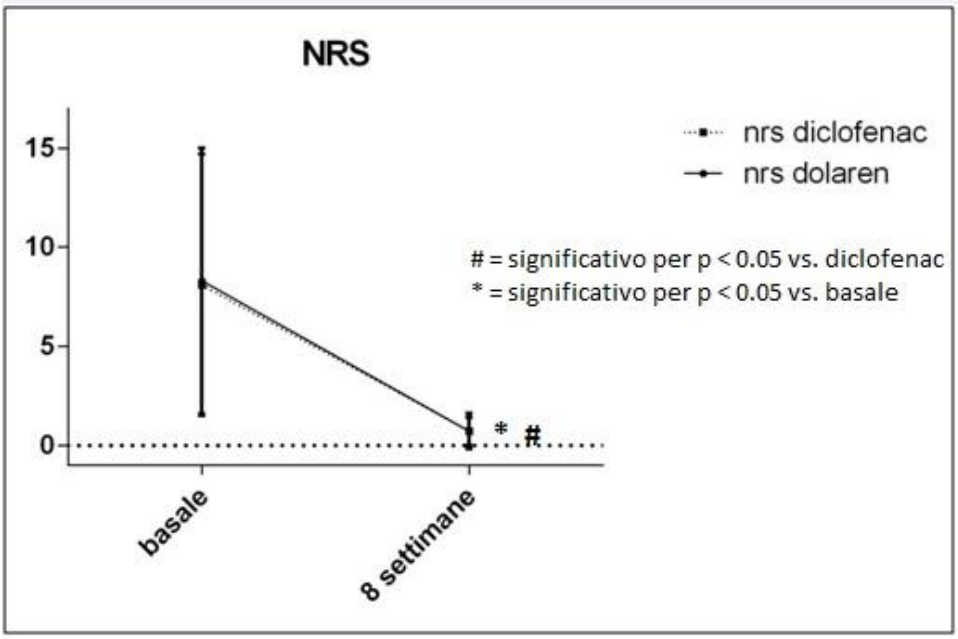


Figure 1

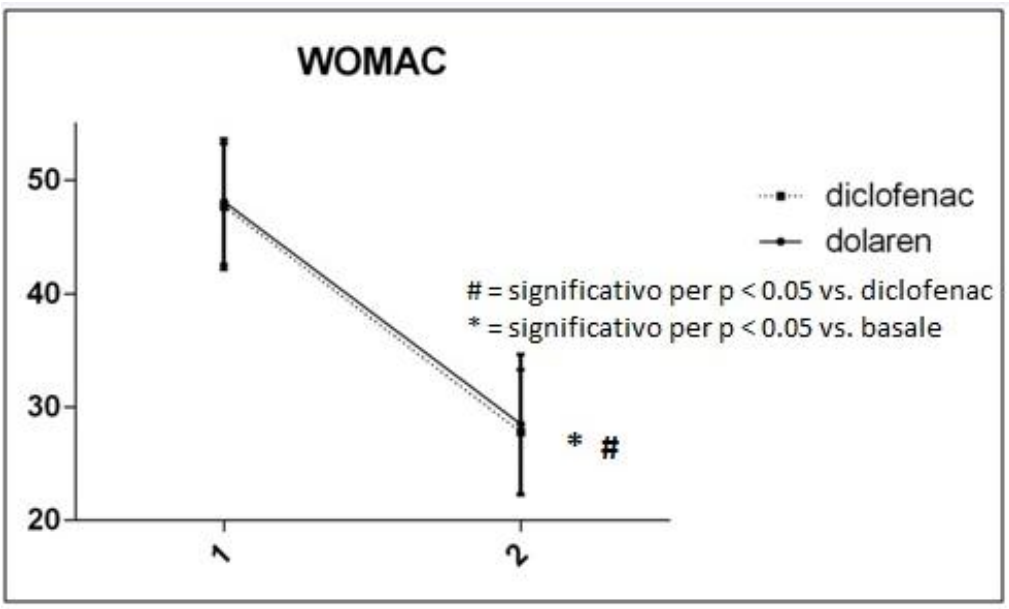


Figure 2

None of the patients experienced adverse events; both Ozoile ® in Dolaren and Diclofenac, topically administered, have shown excellent tolerability and safety.

DISCUSSION - CONCLUSIONS

The data obtained in this study clearly show the effectiveness of Ozoile ® in Dolaren® in the control of pain in knee pain from knee OA, with a substantial overlap of the results obtained with the two preparations taken into account, improved joint function and quality of life in both study groups.

The World Health Organization has reported as 18% of women and 10% of men over the age of 60 years suffer from symptomatic osteoarthritis. Frequently in these patients the pain has significant effects on the cognitive, emotive and especially on behaviour with a profound change in the quality of life.

In the case in which the osteoarticular pathology is characterized by severe pain and / or by a significant functional deficit, prosthetic surgery, is the preferred treatment.

An adequate treatment of pain before, during and after the surgical procedure, as well as in the patient in which the latter is not indicated, is essential for functional recovery.

There are numerous published guidelines for the treatment of pain associated with osteoarthritis, which provide essentially the use of acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs), which, in the case of moderate to severe pain are often inadequate if not within a multimodal approach. In this view Ozoile ® in Dolaren® proves a great drug for pain management in the patient with knee arthritis, alone or possibly in combination with other therapies pharmacological and physiotherapy

Given the overlap of the results obtained with the two treatments under study, we can say that Ozoile ® in Dolaren® can be indicated for use by those patients with hypersensitivity to diclofenac and in pediatric patients, where the use of nonsteroidal anti-inflammatory drugs are not ideal. For this we require targeted studies.