

Ozone Therapy & Treatment of Fibromyalgia

• Dr.T.Tanbouli

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Fibromyalgia Syndrome (FMS)

- Definition: A wide spread musculoskeletal Ch. Pain with heightened and painful response to pressure. (Ngian G etal 2011).
- FMS. is associated with other symptoms as...
 - # Fatigue, sleep disturbance ,joint stiffness (Wolf 1989).
 - # Numbness & tingling (Simms & Goldenberg 1988).
 - # Bowel and bladder abnormalities (Clauw etal 1997).
 - # Cognitive dysfunction (Glass 2006).
 - # Difficulty with swallowing (Wallace & Goldenberg 1988).
 - # Psychiatric disorders as depression , anxiety , and post traumatic stress disorder (Buskila & Cohen 2007) and (Sweinhard etal 2008).
 - # Not all cases experience all associated symptoms (Yunus 1983).
- American Collage of Rheumatology (ACR)...introduce the associated symptomatology as an additional criterion of diagnosis.

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FMS

Incidence:

2-8% of the world population (Clauw 2004).

female to male 7-9 : 1. (Bartels etal 2009) , (Hawkins 2013).

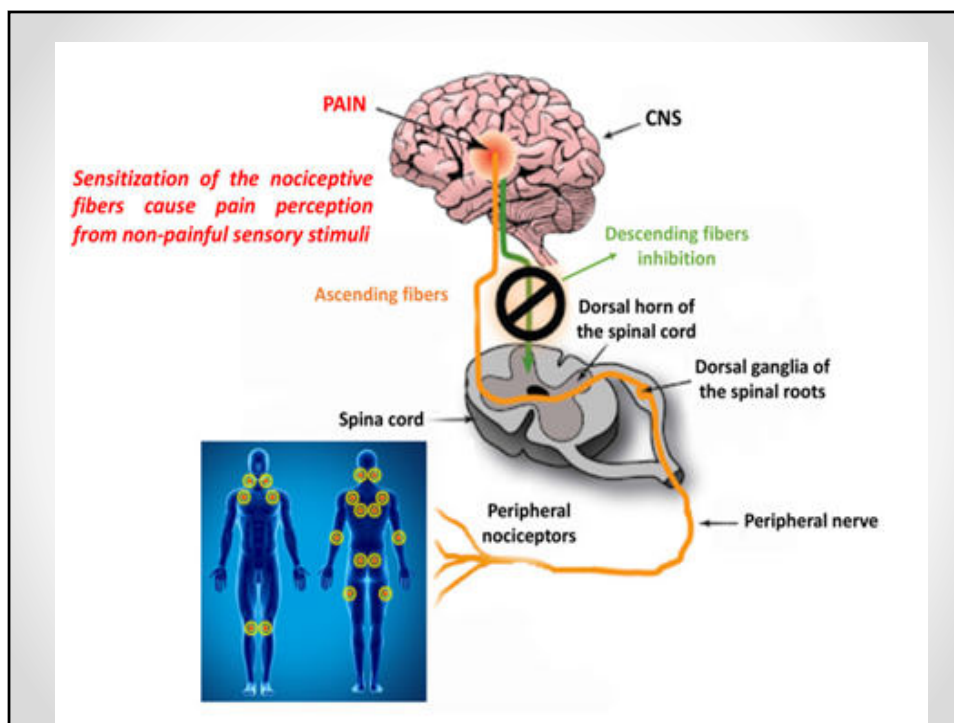
Causes:

Central sensitization phenomenon due to dysfunction of Neuro- circuit which involve perception ,transmission and processing of different nociceptive stimuli , lead to alteration in multiple ways the ascending C.N.S., descending C.N.S. and peripheral pathways.

This will lead to heightened the pain sensitivity.

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FMS (causes):

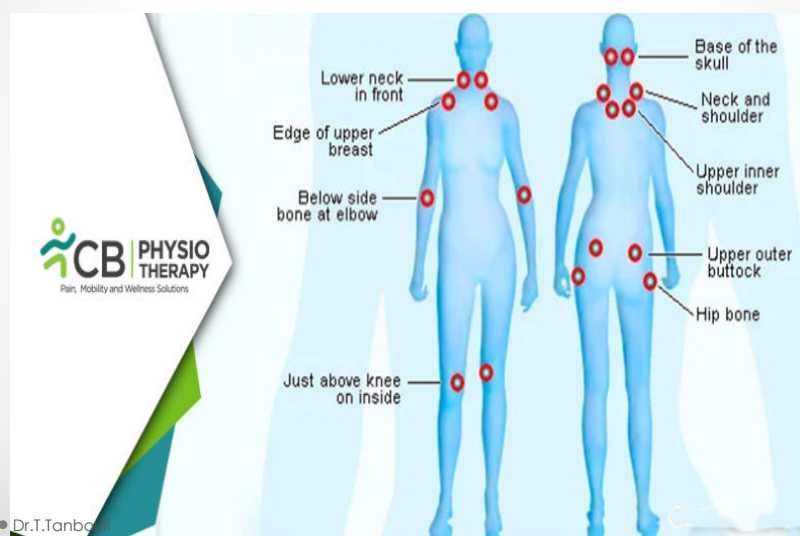
- Recent pathogenesis has been linked to other factors as....
- 1) Inflammatory.
- 2) Immune.
- 3) Endocrine.
- 4) Psychosocial.
- 5) Genetic. (Arnold et al 2004), evidence that genetic factors may play a role as there is a high aggregation of **FMS** in families.

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FMS Diagnosis: if pain persist more than 3 m. in all body quadrants and caused

by digital pressure in at least 11 out of 18 allogenic (tender) points.



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Objective of the study

To evaluate the effect of using different modalities of Ozone therapy for treating **FMS**.

- 1) Rectal insufflation ,
- 2) Minor auto-haemotherapy ,
- 3) Local injections and
- 4) Ozone Sauna in treating FMS.

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Patients and Methods

- This study conducted on 24 patients suffering from FMS for more than 1 year.
- N.B. They didn't show any significant improvement with any medical treatment.
- Age : 22-40 years.
- Pain Assessment scale is used to determine the severity of pain before & after 4- 8 -12 sessions.
- Sleep disturbance as Insomnia .
- Depression.
- Anxiety .

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Patients and methods (continue)

- Patients are divided into 2 groups.

- GROUP (A).

10 patients ...3 males & 7 females. Who are treated 2/week with..

1)Rectal ozone therapy (250-300 ml.of medical ozone with concentrations 20-25-30-30-35-35-and 40 mcgm. Till the end of 12 sessions.

2)Minor autohaemotherapy (2-3ml. Of 25 mcgm /ml.).

3)Local injection (10mcgm/ml) at the tender points.

- GROUP (B).

As group (A) + (4) Ozone Sauna for 30 minutes.

N.B. For maintenance of results ,we suggest 2/Month.

(+ /or) hot bath with Mg. Sulfate.

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EFFECTS OF OZONE STEAM SAUNA (HOCATT)

**(1) Skin has a multiform antioxidant defense system .
so can't be overwhelmed , provided attacks of ozone
& U V .are not too harsh .**

(oxidants and antioxidants in

cutaneous biology- J. Thiele & P. Elsener 2001) .

**(2) study demonstrates that CO2 bathing of ischemic
Hind limb causes the induction of local VEGF (vascular
endothelium growth factor) synthesis, resulting in a non
-dependent neo capillary formation associated with
mobilization of endothelial progenitor cell.**

•(Hidekazu Irie Etal , 2005).

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EFFECT OF HOCATT (Continue)

- **Carbonic acid:**

which penetrates the skin leads to more O₂ released to the tissues according to Bohr's theory .

- **Bohr's theory :** haemoglobin's oxygen binding affinity is inversely related both to acidity and to the concentration of carbon dioxide

- **Thermal stress :** increases absorption of ROS & LOPs .

- **Skin vasodilatation :** enhances transfer of O₂, CO₂, ROS, LOPs

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HOCATT

- Hyperthermia.
- Ozone.
- Carbonic acid.
- Transdermal
- Therapy.

HOCATT advantages:

- 1) O₃ destructor with automatic suction at end of session.
- 2) Can give a systemic effect.

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GROUP (A)

Pain scale	9-10	8-7	6-5	4-3	2-1	0	No. of PT.	Their pain	scale Less	Than
Session						 8 6 4 2
0	7	3					3	0	0	0
4	1	7	2				9	2	0	0
8	0	5	5				10	5	0	0
12	0	2	4	4			10	4	4	0

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GROUP (B)

Pain scale	9-10	8-7	6-5	4-3	2-1	0	No. of PT.	Their pain	scale Less	Than
Session						 8 6 4 2
0	11	3					3	0	0	0
4	0	5	9				14	9	0	0
8	0	1	4	9			14	13	9	0
12	0	0	2	11	1		14	14	11	1

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% of good progress = % of less pain			
No. of sessions	% of significant improvement = less pain	Group A	Group B
4	30 %	9 Patients = 90%	14 Patients = 100%
4	40% - 50%	2 Patients = 20%	9 Patients = 64%
8	30%	10 Patients = 100%	14 Patients = 100%
8	40% - 50 %	5 Patients = 50%	13 Patients = 92.8%
12	30%	10 Patients = 100%	14 Patients = 100%
12	40% - 50%	8 Patients = 80%	14 Patients = 100%
12	60% - 80%	4 Patients = 40%	12 Patients = 85.7%
12	More than 80%	0	1 Patient = 7%

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Discussion

- Despite the extensive efforts to delineate an effective treatment in the last 4 decades,
- FMS continuous to be a very difficult Ch. pain condition to treat.
- Many modalities have been tested for treating FMS.
- No single modality has been found to be universally effective for all FMS patients or its symptoms in an individual patient (Okifujia 2013).
- Both group ,in this clinical study, have good results for such this difficult problem ,but we found that adding the ozone Sauna to the combined local +rectal +Minor ozone therapy have better and faster effect in treating FMS.

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Conclusion

- Ozone therapy shows significant improvement in fibromyalgia symptoms as pain, chronic fatigue, sleep troubles & depression.
- Adding ozone sauna has an earlier significant improvement for fibromyalgia symptoms.
- Local ozone injection is very helpful in treating the tender points in fibromyalgia symptoms.

N.B: follow up to keep on the results , patients have to do 2 Sessions / m. (+ / or) hot bath with Mg. Sulfate salt 2- 3 /w.

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References

- **Ozone therapy in 65 patients with fibromyalgia: An effective therapy:** significant improvement (>50% of symptoms) in 45 patients (70%) "MAH 2/W. for 8 sessions then 2/M &10 pt. Rectal " ([U Tirelli](#), [C Cirrito](#), [M Pavanello](#), [C Piasentin](#), [A Lleshi](#), [R Taibj](#)).
- **Ozone therapy in 40 patients with fibromyalgia: An effective therapy** significant improvement (>50% of symptoms) in 32 patients (80%):10 pt. Rectal & 30 MAH 2/W for 8 sessions then 2/M." ([Umberto Tirelli](#) ,[Cinzia Cirrito](#) ,[Martina Pavanell](#)).
- ([Mohammad H. Elgawish](#) , [Nillie Ezzeldin](#) , [Dina Said](#) , [Mohamed Mortada](#) , [Amira M. Youssef](#))- June 2015 – **Ozone as an adjuvant Therapy in treatment of Fibromyalgia Syndrome – IJAR 2320 – 5407.**
- **(A)** 20 patients treated with local intra-muscular ozone injection 2 sessions /week for 5 weeks.
- **(B)** 20 patients treated with local I.M. injection in tender points and rectal ozone therapy /twice weekly for 5 weeks and the third group
- **(C)** Include 10 patients were the control group not receiving ozone therapy
- **Improvement :** 33.4%, 47.7% and 17% in group A ,B, and C. .

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Refrence

- Several mechanisms of action have been proposed to explain the efficacy of ozone therapy including analgesic , anti-inflammatory and oxidant action on proteoglycans. Ozone is administered in the form of an oxygen-ozone gas mixture using various percutaneous methods (Booci 2006).

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Thank You ..

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