

OPINION ARTICLE

Ozone Therapy: two projects of treatment in Vietnam population for back pain and stroke [abstract]

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ABSTRACT

Here we show the results of two clinical studies projects carried out in Vietnam patients suffering from Back Pain or Stroke.

The treatment from Back Pain were executed with classical paravertebral injection of ozone.

The treatment of stroke were executed (first project) with injection of ozone and acupuncture in the same area. The second project the patients have been treated only with ozone injection and only acupuncture.

1st PROJECT ACTIVITIES REPORT FOR FOUNDATION PRO.SA NGO

Project name	Ozone therapy
Reporting period	26th March to 4th May, 2016
Project worker name and job's title	Dr. Nguyen Thi Hoa, M.D Dr. Trinh Duy Thang (Doctor of traditional medicine)

1.1.- General information of patients

2,693 patients were submitted to ozone therapy treatment in the First Project

Table 1. Distribution of ages

<30	30-60	>60
9 %	68 %	23 %

Table 2. Distribution of gender

Females	43 %
Males	57 %

Table 3. Distribution of disease

Spinal columns	60 %
Stroke	28 %
Others	12 %

1.2.- Results

1.2.1.- Patients with spinal columns disease

Table 4. Treatment results

	Recovery	Pain relief	No response
Patients (%)	82 %	14 %	4 %

Table 5. Response after injection

	1st injection	2nd injection	3rd injection	4th injection
Patients (%)	30 %	50 %	80 %	90 %

1.2.2.- Patients with stroke

Following treatment progress of 50 stroke patients that used ozone therapy (10 mcrg/mL – 20 mL/injection) daily continuity 20 days, we reassessed the result as below:

- Almost patients had optimistic effect after 3 injections. For example, ozone therapy stabilize their blood pressure, reduce muscle contractures and increase muscle tone;
- Continuing treatment to 15th injection, ozone therapy improve significantly The extent of paralysis (from level 3 to level 2). This is an important advantage;
- Ozone therapy hasn't got any side-effects to all patients.

1.3.- Conclusion

Ozone therapy is a new stride. Comparing with traditional treatment methods, it can improve treatment effectiveness rapidly.

2nd PROJECT ACTIVITIES REPORT FOR FOUNDATION PRO.SA ONG

Project name	Ozone therapy
Reporting period	From 01- May- 2016 to 30- Jan-2017
Project worker name and job's title	Dr. Nguyen Thi Hoa, M.D Dr. Trinh Duy Thang (Doctor of traditional medicine)

2.1.- General information of patients

8,981 patients were submitted to ozone therapy treatment in the Second Project.

2.2.- Results

Table 6. Total injections

	Injections
Spinal diseases	6,133
Stroke patients	2,700
Others	148
Total injections	8,981

Table 7. Dose-response

First dose releases the pain about	38 %
Second dose releases the pain about	55 %
Third dose releases the pain about	89 %
Fourth dose releases the pain more than	90 %

Table 8. Rate in treating by ozone

10 - 15 µg /injections/dose:	66 %
20 - 25 µg /injections/dose:	25 %
6 - 9 µg /injections/dose:	7 %
< 5 µg /injections/dose:	2 %
Total	100 %

Table 9. Diseases

Spondylolisthesis	45 %
Herniated Disks	20 %
Degenerative Disc	3 %
Stroke patients	30 %
Others (cancer, ...)	2 %

3.- SUMMARY OF OZONE INJECTION TREATMENT PATIENTS WITH HEMIPARESIS DUE TO STROKE

62 patients with hemiparesis due to stroke at Kinh 7 Charity Clinic have been treated with ozone injection and acupuncture.

Results are as follows:

- Patients received early treatment showed best results.
- The role of the traditional medicine is vital. Besides the use of acupuncture, ozone injection, massage, ozone injection is found effective. Comparing the two groups, we found that the response from the first group (with ozone injection) is 35.5% while the second group (without ozone injection) is 30.6%
- Ozone injection is easy to access locally but there is the lack of infrastructure and the limit of medical equipments.

3.1.- PATIENTS AND METHODOLOGY

3.1.1.- Patients

62 patients regardless of age, and gender who had hemiparesis due to stroke who were treated with Western medicine (from day 5 to day 21)

3.1.2.- Methodology

Experimental method, use of data statistics and evaluate results after treatments

3.1.3.- Research utility

- Sterilized syringe 10 mL
- Ozone 10 μ g /mL

3.1.4.- Methodology

3.1.4.1.- Patient Criteria:

- Patients with hemiparesis due to stroke
- Patients with hemiparesis with different level of paralysis

3.1.4.2.- Diagnostic Criteria

a) Modern Medicine

- Alert or drowsy
- Stuttering, or not able to talk
- Hemiparesis with varied level
- Circular muscle disorder
- High or normal blood pressure

*Ozone injection: Inject total ozone 200 µg (10 µg/mL) into acupuncture points, once every two day combined with massage around points and whole body

b) Traditional Medicine

+ Kidney problem, Pale face, red cheeks, Pale tongue, Tender tongue, red tongue edge, thick yellow tongue, Incontinence during the night, constipation, Hemiparesis or sometimes facial paralysis, Stuttering, or not able to talk, insomnia, Weak pulse, Very pale not feeling thirsty, not drink water.

Acupuncture Technique

- Patients lie on their backs or on their sides Acupuncture points selection
- Acupuncture procedure: Sterilize doctor's hands and acupuncture point
- Depending on where the point is, use short or long needle
- Stimulate by electronic acupuncture with 2 frequency level
- Frequency: 250 - 300 v / minute with interruption.
- Increase frequency depending on patient's endurance.
- Frequency: 60 - 80 v / minute regularly.
- Increase frequency depending on patient's endurance.
- Each acupuncture lasts for 30 minutes A full treatment includes 20 acupuncture Every week, patient will take 2 days off.
- Depending on patient's status that requires 1 or 2 full

3.1.5.- Evaluation Criteria

3.1.5.1.- Paralyzed level

In order to evaluate the treatment result, standard clinical examination is considered, grouping patients based on their paralyzed level regulated by the Institute of Acupuncture of Vietnam. Paralyzed criteria and language is as follow:

- *Level I:* Patient has control of him/herself, independence with self-care and can hold things with their weak muscle, unclear facial paralysis and not having speech disorder.
- *Level II:* Patient has limit control of him/herself, needs help with ambulation; can't hold things nor lift hands and feet up (hands up to shoulder level). Light facial paralysis, speak slowly and not pronounce clearly
- *Level III:* Patient can sit, can lift hands and feet, has little movement with fingers and toes, clear facial paralysis, lost speech or can only speak a few words.
- *Level IV:* Patient can't ambulate, can't sit, be bedridden, has muscle contraction, clear facial paralysis, lost speech.
- *Level V:* patient can't ambulate, can't sit and be bedridden, clear facial paralysis and lost speech

3.1.5.2.- Treatment Criteria

Patient is evaluated paralyzed level before and after treatment, the paralyzed level after treatment as follow:

- A level: Much better, paralyzed level was decreased by 2-3-4.
- B level: A bit better, paralyzed level was decreased by 1.
- C level: Not better, paralyzed level is the same.

3.1.6.- Data collection and analysis

Data collected and updated to patient's medical profile and analyze data using medial data analysis methodology

3.2.- RESEARCH RESULTS

This study has been conducted since 12/2015 to 11/2016 with the sample of 62 patients with hemiparesis due to stroke, divided into two groups: **Group 1:** 31 patients and **Group 2:** 31 patients

3.2.1.- Patient Description

Table 10. Age distribution

Age	Patients	Ratio
<40	2	3.2 %
40-50	3	4.8 %
50-60	14	22.6 %
60-70	17	27.4 %
>70	26	42.0 %
Total	62	100 %

*Evaluation:

- 3.2% are patients under 40
- 4.8% are patient from 40-50
- 4.8% are patient from 50-60 and 60-70
- 50% are patient from above 70

Table 11. Gender distribution

Gender	Patients	Ratio
Male	42	67.7 %
Female	20	32.3 %
Total	62	100 %

*Evaluation: More male than female (p<0.05)

Table 12. Correlation between brain hemorrhage and ischemic stroke according to traditional medicine

Profile	Brain hemorrhage		Ischemic stroke		Total	Ratio
Kodney problem	20	32.3 %	30	48.4 %	50	80.7 %
Hemorrhagic	2	3.2 %	10	16.1 %	12	19.3 %
Total	22	35.5 %	40	64.5 %	62	100 %

*Evaluation:

- 64.5% are patients with ischemic stroke
- 80.7% are patients with kidney problems

Table 13. Age correlates to treatment

Age	Type A		Type B		Type C		Total	Ratio
<50	4	6.5%	1	1.6%	0	0.0 %	5	8.1 %
50-60	11	17.7%	3	4.8%	0	0.0 %	14	22.5 %
60-70	11	17.7%	4	6.5%	2	3.2 %	17	27.4 %
>70	15	24.2%	7	11.3%	4	6.5 %	26	42.0 %
	41	66.1%	15	24.2%	6	9.7 %	62	100 %

*Evaluation:

< 50 and from 50-60, the recovery rate is higher
From 60-70 and >70, a small percentage not recovered

Table 14. Gender correlates to treatment

Gender	Type A		Type B		Type C		Total	Ratio
Male	32	51.6 %	8	12.9 %	2	3.2%	42	67.7 %
Female	9	14.5 %	7	11.3 %	4	6.5%	20	32.3 %
	41	66.1 %	15	24.2 %	6	9.7%	62	100 %

*Evaluation: Male has higher recovery rate than female

Table 15. The time when stroke happened to the time when one admitted to clinic correlates to treatment result

Time Gian (months)	Type A	Type B	Type C	Total	Ratio
< 3	32 5.0 %	10 16.2 %	0 0.0 %	42	67.8 %
3-6	2 3.2 %	0 0.0 %	0 0.0 %	2	3.2 %
> 6	2 3.2 %	2 3.2 %	1 1.6 %	5	8.0 %
> 12	5 8.1 %	3 4.8 %	5 8.1 %	13	21.0 %
	41 51.6 %	15 24.2 %	6 9.7 %	62	100 %

*Evaluation: The earlier the patient with hemiparesis receives treatment, the better the recovery rate.

Table 16. Comparison of group I and II

Time Gian (months)	Type A	Type B	Type C	Total	Ratio
Group I	22 35.5 %	7 11.3 %	2 3.2 %	31	50.0 %
Group II	19 30.6 %	8 12.9 %	4 6.5 %	31	50.0 %
	41 66.1 %	15 24.2 %	6 9.7 %	62	100 %

*Evaluation: No big difference in treatment result in two groups

3.3.- DISCUSSION

3.3.1.- Age

The majority of patients with hemiparesis due to stroke who have been admitted to our clinic are in middle aged between 50 to 70 years old and above 70 years old (92%) This is similar to many study result both nationally and internationally. However 3.2% patients are under 40 years old. It is vital to look differently to prevent this population from the risk of having stroke.

3.3.2.- Gender

Also study shows that the percentage of male having this is higher than female 67.7% for male versus 32.3% for female. This is similar to the study of Professor Nguyen Tai Thu about the treatment for patients with hemiparesis due to stroke and other research internationally.

3.3.3.- For those with comorbidity including high blood pressure, diabetes, heart attack ...

Among 62 patients, 46.7% of them have high blood pressure which is administered by modern medicine. For those who have high blood pressure under control, the rate of recovering from paralysis is high. For 1.6% patient who has diabetes, the result is not as expected, though diabetes is under control. 8% who suffered from heart attack and who has been treated following the best protocol and no side effects appeared.

3.3.4.- Correlation between brain hemorrhage and ischemic stroke according to traditional medicine

It is found that 80.7% patients with stroke have cardiac problems while 64.5% have ischemic stroke (table 3.3). This is relevant to modern medicine. However, according to the traditional medicine, patients with kidney problems will develop quadriplegia in the long run.

3.3.5.- Age correlates to treatment result

According to data from table 3.4, those patients under 50 and 60 tend to recover better than those above 70 due to the wellbeing of these patients. Male tends to react better than female. However, the severe level and recovery rate depends which part of the brain was injured.

3.3.6.- The time when stroke happened to the time when one admitted to clinic correlates to treatment result

According to data from table 3.6, it is important to know that the earlier the patient can receive treatment, the higher recovery rate. Under 3 months (67.7%) versus more than 12 months (21%). Therefore, it is vital to educate patients and their caregivers about the importance of early treatment.

3.3.7.- Comparison of group I and II

Compare the two groups, it is found that 35.5% of type A of group I respond well compared to 30.6% for group II. However, there is no difference in type B of group II, 11.3% versus 12.9% and type C of group I is 3.2 which is lower than group 2 6.5%. Even though there is no big difference in the treatment result, it is prospective that patients with stroke who also receive traditional medicine tend to recovery better.

3.4.- CONCLUSION

Among 62 patients with hemiparesis due to stroke using ozone injection together with acupuncture, we realized that the reality of patients regardless of age, gender, paralyzed level is similar to previous studies.

It is important for patients and caregivers to know the earlier these patients got treatment, the higher recovery rate for these patients. This is also relevant to the recent concept that patients should practice right after getting the stroke, the earlier the better.

In the treatment of stroke, traditional medicine plays a vital role. Besides taking medicine, patients who receive acupuncture, massage tend to receive better results, which will help them integrate into the community and society, reduce the burden for the family and society

Compared the treatment of two groups, those of type A of group I (with ozone injection) showed a better response, 35.5% while in the group II (without ozone injection) the response rate was only 30.6%

Acupuncture and ozone injection are accessible in local area even though there is the lack of infrastructure. It is important to expand more.

Due to the small sample, the results has limitation. However the evaluation is a reference which requires to have better collaboration to increase sample for the validity of the methodology.