

Case report

Endoscopy evidence; H. Pylori infection Ozonotherapy treated, Mexican cases report

Dr. María Ana Rivera Soto. MD

Médico Cirujano y Homeópata, M. en C. Toxicología, CINVESTAV, México

Dr. Carlos Alberto Romo-Vázquez. MD

Médico Cirujano General UNAM. Presidente del comité de bioética. Director Hospitamex. México

Dr. Nalleli Weber-Chuliá. MD

Presidenta de la Sociedad Nacional de Profesionales en Ozonoterapia SC -SONAPROZ México

Keywords

Ozonotherapy,
ozonated virgin olive
oil,
ozonate saline
solution,
Helicobacter pylori
infection
endoscopy.

Abstract

Helicobacter pylori (*H. pylori*) infection leads to chronic gastritis, peptic ulcer, gastric adenocarcinoma. Is a worldwide spread infection, is been estimated that affects nearly half of world's population; gold standard method for diagnosed is gastric tissue biopsy obtained during endoscopy. Proton bomb inhibitor, antimicrobial treatment in a double or triple scheme are the election treatments, however is been reported high antimicrobial resistance making complicated treat *H. pylori* infection. We propose 90 days ozonotherapy protocol which consist of parenteral ozonated saline solution treatment and oral intake of 1 mL ozonated olive oil (600 meqO₂) BIOZON ® as unique treatment scheme to eradicate *H. pylori* infection. In our private medical office were admitted 21 patients (10 males, 11 females) with chronical dyspeptic symptoms, endoscopic study was ordering to verify *H. pylori* infection and initiate ozonotherapy treatment. Patients were cited every 15 days for parenteral ozonated saline solution treatment and gave them full treatment for ozonated olive oil (600 meqO₂) BIOZON ®. Our results after finished protocol presented positives results on decreased dyspeptic symptoms (18 cases), remaining just casual burping-up and the negative endoscopic results of 66% of the ozone treated patients. We performed a short study who represent only an estimation of the positive role of ozonotherapy in *H. pylori* infection. Nonetheless it takes further investigation and large epidemiological studies to propose these protocol as only effective *H. pylori* treatment...

Palabras clave

Ozonoterapia
aceite de oliva virgen
ozonizado,
solución salina ozonizada,
Infección *Helicobacter*
pylori
endoscopia.

Resumen

La infección por *Helicobacter pylori* (*H. pylori*) lleva a desarrollar, gastritis, úlcera péptica y/o adenocarcinoma gástrico. Es una infección diseminada a nivel mundial, se estima que afecta casi a la mitad de la población a nivel internacional. Para su diagnóstico la prueba estándar es la biopsia de tejido obtenida a través de endoscopia. Los tratamientos de elección son inhibidores de la bomba de protones y tratamiento antimicrobiano en doble o triple esquema; sin embargo, se ha reportado múltiples casos de resistencia antimicrobiana haciendo más complicado su tratamiento. Se propuso un protocolo de tratamiento de 90 días el cual consistió en solución salina ozonizada vía sistémica y tratamiento oral de aceite de olivo ozonizado (600 meqO₂) BIOZON® 1 mL, como único esquema de tratamiento para erradicar la infección por *H. pylori*. En el consultorio médico privado, fueron admitidos para el protocolo 21 pacientes (10 hombres, 11 mujeres) con síntomas crónicos de dispepsia, se ordenó endoscopia para verificar la infección por *H. pylori* e iniciar tratamiento con ozonoterapia. Los pacientes fueron citados cada 15 días para la aplicación de la solución salina ozonizada vía sistémica y se les dio desde un inicio el tratamiento completo por 90 días, aceite de olivo (600 meqO₂) y al término del protocolo los resultados fueron positivos en la disminución de los síntomas dispépticos (18 casos), quedando como síntoma remanente eructos y resultados endoscópicos negativos para la presencia de *H. pylori* en el 66% de los pacientes tratados con ozonoterapia. Se realizó un pequeño estudio, que representa solo la estimación de un rol positivo de la ozonoterapia en infecciones por *H. pylori*. Sin embargo, se requiere más investigación y estudios epidemiológicos más grandes para poder proponer este protocolo como único tratamiento efectivo para *H. pylori*.

Suggestion on how to quote this paper:

Rivera Soto, María Ana et. al.. (2018). Endoscopy evidence; H. Pylori infection Ozonotherapy treated, Mexican cases report, *Revista Española de Ozonoterapia*. Vol. 8, nº 1, pp 171-179

Introduction

Helicobacter pylori (*H. pylori*) is gram-negative bacterium, colonizes human stomach, leading chronic gastritis, peptic ulcer, gastric adenocarcinoma.¹ Is a worldwide spread infection, is been estimated that affects nearly half of world's population. Developing countries acquiring a higher prevalence almost 90 %.² Is a prevailing male gender infection, 65 % males suffer; nevertheless, prevalence of females is just either less than males (62.7 %), most common rate exposition is 14 to 29 age.³ Is been identify a direct Infection route, oral-oral, fecal-oral.⁴ Nowadays it could be diagnosed by several methods, although gold standard method is gastric tissue biopsy obtained by endoscopy.⁵ Election treatments include proton bomb inhibitor, antimicrobial treatment in a double or triple scheme (penicillin amine, macrolide, polyketide, imidazole's), however is been reported high antimicrobe resistance making complicated treat *H. pylori* infection.⁴ Proposing new treatment regimens appears to be a priority. Ozonotherapy has provide a quiet great difference in symptoms remission of gastritis induce by *H. pylori* due its anti-inflammatory and antibacterial effect⁶.

Our goal group is to propose as unique treatment scheme ozonotherapy (parenteral ozonated saline solution and ozonated extra virgin olive oil) for eradicate *H. pylori* infection, decreasing ROS levels, increasing levels of antioxidant enzymes and eradicating bacterial infection by antioxidant properties due parenteral treatment strengthening by the intake of ozonated extra virgin olive oil and antibacterial properties which both confer⁷.

Ethics

Patients were treated with Dr. Nalleli Weber Chuliá (Ozonotherapy international certified specialist) medical group at private medical office.

The cases presented in this article were informed in a precise manner of the treatment to be performed and were informed of the use of their data for the publication of this article, respecting the agreements signed in the Helsinki act⁸. There is no conflict of interest for the use of the data presented for the publication of this article.

Informed consent is signed prior to completion of treatment and publication of the work.

Cases report

INCLUSION CRITERIA

Female or male among 21-65 years old, with no early H. pylori antibiotic treatment or during the ozonotherapy protocol treatment.

EXCLUSION CRITERIA

Female or male under 21 years old, with pregnancy or in breastfeeding period.

CASES

Were admitted 21 patients (10 males, 11 females) with chronic dyspeptic symptoms, burping, nausea, abdominal bloating. Endoscopic study was ordering to identify if symptoms correspond to H. pylori infection and initiate ozonotherapy treatment. Endoscopic findings showed 80% of males and 54% of were positive for H. pylori infection (Table 1).

TABLE 1: Endoscopically findings of 21 patients with chronic dyspeptic symptoms.

*WITH OZONOTHERAPY TREATMENT				
ENDOSCOPICAL FINDINGS	GENDER	PRESENCE H. PYLORI	NO PRESENCE H. PYLORI	TOTAL, OF CASES
	MALE	8	2	21
	FEMALE	6	5	
	TOTAL, OF CASES	14	7	
		PRESENCE	NO PRESENCE	
	GASTROPATHY	11	2	POSITIVE H. pylori
		7	1	NEGATIVE H. pylori
	GASTRIC ULCER	1	2	POSITIVE H. pylori
		0	18	NEGATIVE H. pylori
	TOTAL OF CASES	21		

Patients were treated with 90 days of ozonotherapy protocol treatment proposed by Ozonotherapy Madrid Statement,⁹ which include parenteral ozonated saline solution and ozonated virgin olive oil.¹³

Patients were cited every 15 days for symptoms control and parenteral ozonated saline solution (200 mL continuous flux, 2 µg/kg/10 min)¹³ treatment; and for 90 days non-suspended oral intake of 1 mL ozonated virgin olive oil (600 meqO₂) 20 minutes before meals.

Worth noting that we include all patients in protocol (positive or negative H. pylori infection) in order to diminished dyspeptic symptoms.

After 90 days of treatment we order to previous positive H. pylory infection patients perform control endoscopy to discard infection, in which we observed encouraging results; in the endoscopic findings we realize that 90% of treated males and 72% of treated females results with no presence of H. pylory infection (Table 2).

TABLE 2: Endoscopic findings after 90 days ozonotherapy treatment of previous positive H. pylori infection patients

ENDOSCOPICAL FINDINGS	WITH OZONOTHERAPY TREATMENT**			TOTAL OF CASES
		PRESENCE H. pylori	NO PRESENCE H. pylori	
	MALE	1	7	
	FEMALE	2	4	
TOTAL OF CASES	3	11	14	

To the total of 21 patients which present dyspeptic symptoms after applying ozonotherapy protocol by clinical examination we observed an 85% of clinical improvement (symptoms decreased) in equal manner at both genders; remaining only occasionally burping.

Discussion:

Despite all the protective barrier of gastrointestinal tract (GI), produces in a great manner reactive oxygen species (ROS) induced by all ingested materials and pathogens cause inflammation; activating polymorphonuclear neutrophils (PMNs), macrophages and inflammatory cytokines that contribute further to ROS formation. Most of inflammatory and malignant GI diseases as inflammatory bowel disease, ulcers, cancer arise part from ROS and infections¹⁰.

H. pylori infection is known as risk factor for gastric cancer, entails ROS production (chemotactic activity for neutrophils or lipidperoxidation).¹¹ Either by food intake or H. pylori infection ROS production are known as one of the most toxic factors for gastric injury.¹²

The ozonotherapy works as bactericide or decreasing ROS levels. Bactericide properties helps on H. pylori infection eradication,¹³ decreasing ROS production (catalase (CAT) and myeloperoxidase (MPO)) and increased protective ROS enzymes as superoxide-dismutase, total glutathione, these mechanisms lead to shortens healing acute gastric ulcer, as was observed in experimental rats models¹⁴ were ulcer diameter was decreased and the ROS production. In our work, we have observed of 21 patients treated 90 days with parenteral ozonotherapy and ozonated virgin olive oil, 18 cases decreased dyspeptic symptom symptomatology, remaining just casual burping-up, these results could response to low gastric ROS levels and decreasing gastric inflammation.

Villadongia Reyes et al. 2012 observed in patients with gastric ulcer H. pylori diagnosed treated with ozonotherapy a considerable recovering in gastric ulcer symptomatology and observed eradication of H. pylori infection corroborated by endoscopy¹⁵. In our case 14 cases of 21 patients diagnosed H. pilory positive, after our 90 days protocol treatment present by endoscopy a negative result for the infection; 66% of the treated patients presents a negative endoscopic result could lead us to think in the bactericide ozonotherapy properties¹⁶, our results brace the clinical and laboratory findings on H. pilory diagnosed patients were their gastric symptoms and laboratory findings results abolished and negative after Ozolife softgels® treatment⁷. Some other ozonotherapy working groups observed a ceasing of gastric and ulcer symptoms and eradication of H. pilory after treatment sustaining our clinical findings^{17,18}.

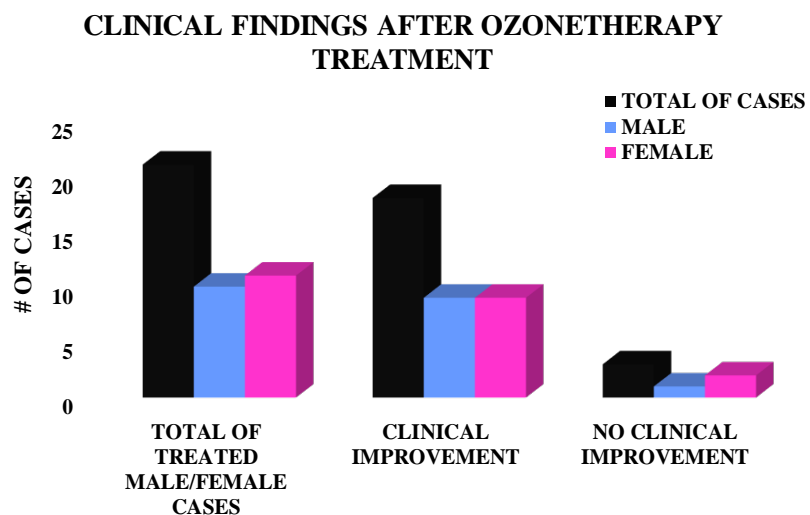
Nevertheless, the results obtain it would be necessary to perform larger clinical studies to have more statistical basis and sustain the clinical findings.

Conclusions

A short study as we performed shows us only an estimation of the positive role of ozonotherapy in H. pylori infection. We conclude that our protocol proposed was effective in dyspeptic clinical improvement and eradication of H. pylori infection. Nonetheless it takes further investigation and large epidemiological studies to propose these protocol as only effective H. pylori treatment.

BIBLIOGRAPHY

1. Zamani, M. et al. Systematic review with meta-analysis: the worldwide prevalence of *Helicobacter pylori* infection. *Aliment. Pharmacol. Ther.* (2018). doi:10.1111/apt.14561
2. Elvira Garza-González, Guillermo Ignacio Perez-Perez, H. J. M.-G., Bosques-Padilla, F. J. & Elvira. A review of *Helicobacter pylori* diagnosis, treatment, and methods to detect eradication. *World J. Gastroenterol.* 20, 1438–1449 (2014).
3. Ruiz Domínguez, R. & Huanca Poma, A. Prevalence of *H. pylori* in a population of middle and upper socioeconomic levels. 19, 35–39 (2013).
4. Abdo-Francis, J. M. et al. III Consenso Mexicano sobre *Helicobacter pylori*. *Rev. Gastroenterol. México* 72, 323–338 (2007).
5. Mendez-Garza, J., Wang, B., Madeira, A., Giorgio, C. Di & Bossis, G. Synthesis and Surface Modification of Spindle-Type Magnetic Nanoparticles: Gold Coating and PEG Functionalization. *J. Biomater. Nanobiotechnol.* 4, 222–228 (2013).
6. Schwartz, A. Ozonoterapia en los trastornos hepáticos, renales y gastrointestinales. *Man. Ozonoterapia Clínica* . 271–99 (2017).
7. Serrano, Y. M., Suarez, J. C. C., & Ramos, I. H. Ozolife Softgels® , nueva alternativa en el tratamiento del *Helicobacter pylori*. *Rev. Española Ozonoterapia* 6, 79–88 (2016).
8. Review, C., Communication, S. & Principles, G. World Medical Association. World Medical Association Declaration of Helsinki Ethical Principles for Medical Research Involving Human Subjects. *J. Int. Bioéthique* 15, 124 (2004).
9. International Scientific Committee of Ozone Therapy. Madrid Declaration on Ozone Therapy. 2th ed. Madrid: ISCO3; ISBN 978-84-606-8312-4; 2015.
10. Bhattacharyya, A., Chattopadhyay, R., Mitra, S. & Crowe, S. E. Oxidative Stress: An Essential Factor in the Pathogenesis of Gastrointestinal Mucosal Diseases. *Physiol. Rev.* 94, 329–354 (2014).
11. Drake, I. M. et al. Reactive oxygen species activity and lipid peroxidation in *Helicobacter pylori* associated gastritis : relation to gastric mucosal ascorbic acid concentrations and effect of *H. pylori* eradication. 768–771 (1998).
12. Jung, H. K., Lee, K. E., Chu, S. H. & Yi, S. Y. Reactive oxygen species activity, mucosal lipoperoxidation and glutathione in *Helicobacter pylori*-infected gastric mucosa. *J. Gastroenterol. Hepatol.* 16, 1336–1340 (2001).
13. Keane, E. & Giulio, D. R. Di. Fate, Transport, and Toxicity of Nanoscale Zero-Valent Iron (nZVI) Used During Superfund Remediation. *Nicholas Sch. Environ.* 52 (2009). doi:http://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/2172/Keane_MP_042610.pdf?sequence=1
14. Bicer, S. et al. Gastroprotective effect of Oxygen-Ozone therapy in the model of indomethacin induced acute gastric ulcer in rats. *Int. J. Clin. Exp. Med.* 9, 22126–22133 (2016).
15. Carmen Villadoniga Reyes; Norge M Larramendi Céspedes; Lesbel Morales Jiménez; Aracelis Reyes Castillo. Ozone therapy as an alternative treatment in the patients with duodenal ulcer and positive *Helicobacter pylori*. 16, (2012).
16. Baker, K. H., Hegarty, J. P., Redmond, B., Reed, N. A. & Herson, D. S. Effect of oxidizing disinfectants (chlorine, monochloramine, and ozone) on *Helicobacter pylori*. *Appl. Environ. Microbiol.* 68, 981–984 (2002).
17. Fedorov AA, Gromov AS, Sapronenok SV, Kurochkin V, Z. Z. Ozone therapy in gastroduodenal pathology associated with *Helicobacter pylori*. *Vopr Kurortol Fizioter Lech Fiz Kult.* 6, 34–37 (2006).
18. Lelianov AD, Budrin VA, Novikov AS, Guseva ED, Nesterov AA, K. P. Optimization of the treatment of stomach ulcer in patients subjected to perforated gastroduodenal ulcer closure. *Eksp Klin Gastroenterol* 5, 81–85, 165 (2007).



GRAPHIC 1: CLINICAL FINDINGS AFTER 90 DAYS OF OZONOTHERAPY TREATMENT IN THE 21 PATIENTS WITH DYSPEPTIC SYMPTOMS.