A POSSIBLE SOLUTION TO EBOLA: OZONE THERAPY

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This document is a public call for help against Ebola epidemic

Abstract
WHO position. In a desperate measure, WHO (World Health Organization) authorized the use of experimental treatments and vaccines, some of which have never been applied before in humans. This means that the medical community is totally ignorant about the potential side effects of these medicines, and do not even know if they will be effective to eliminate the virus.

Challenge we face. But even assuming that these experimental medicines were useful in saving lives, they are not and will not be readily available. Meanwhile the virus infection would move forward.

Possible solution: Medical Ozone. It is an absolutely safe treatment that stimulates the immune system. It may be available in large quantities at low cost, even in the poorest areas of the world. The antiviral and antibacterial properties of ozone are well recognized. The Ebola virus has little chance to survive directly exposed to its gas.

Routes of administration. The ozone treatment would be administered by rectal insufflation.

Brief scientific analysis of the ability of ozone to treat Ebola. The document details the scientific bases of ozone therapy.

IMEOF call
The document calls to all associations of ozone therapy, whether they are members or not of IMEOF and to all ozonetherapists physicians worldwide, to constitute a medical team that can travels to major areas of pandemic to train and administer the treatment, as well as to commercial companies, to donate generators and supplies. Those who are interested are encouraged to contact IMEOF or AEPROMO through the following e-mails www.imeof.org; www.aepromo.org
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The presence of Ebola
The world is shocked by the news from Africa in relation to the Ebola virus. The number of patients in the current epidemic is above 6500 and the death toll is higher than 3000 in the most affected countries which are Liberia, Sierra Leone and Guinea, (figures released by WHO on September 30, 2014). In a study published last September 24, 2014 by WHO, “the cumulative number of confirmed and probable cases” by beginning of November would increase to more than 20,000 cases, surpassing the previous WHO estimates. These data indicates that if drastic control measures are not introduced sooner, the number of cases and deaths from Ebola will continue to grow from hundreds to thousands per week in the coming months.

WHO position: To apply treatments which still are being tested.
In a desperate measure, on August 11, 2014, the WHO (World Health Organization) convened a panel of experts (over 200 people) to analyze the option of using experimental treatments. The panel concluded “In the particular context of the current Ebola outbreak in West Africa, it is ethically acceptable to offer unproven interventions that have shown promising results in the laboratory and in animal models but have not yet been evaluated for safety and efficacy in humans as potential treatment or prevention.”

In other words the use of experimental treatments and vaccines has been approved, even when some of them have never been applied before in humans. This means that we are completely ignorant about the potential side effects of these drugs, and do not even know if they will be effective to eliminate the virus.

Authorizing the use of untested vaccines and treatments to treat patients with Ebola hemorrhagic fever is a big step that WHO has just taken. The logic here must be to save lives and contain the spread of the disease which constitute a high priority.

1 http://www.who.int/csr/disease/ebola/en/
Challenge we face

However, we face a major challenge: If they were indeed useful for saving lives, large amounts of these experimental drugs are not and will not be readily available, as stated by some of the drug companies involved. Therefore, the effectiveness of these drugs to control the spread of the disease in the short term should be seriously questioned.

There are some facts that make the current epidemic a formidable health threat all around the world. Currently, Ebola is only active on the African continent, but constitutes a threat to global health, as there is a danger that may expand elsewhere by people traveling to areas at risk and return to their countries without being aware that they are incubating the disease, as has just occurred on Tuesday September 30, 2014 in Dallas (USA)\(^4\) with a traveler who gave positive testing for the Ebola virus, constituting the first case diagnosed in the United States. Because of this situation 50 individuals are under quarantine.

Note that:
1. The virus is one of the deadliest that can infect humans, with a mortality rate between 83 and 90\% (in the epidemic of 2002-2003).
2. There is no cure or vaccine against it (at least recognized by the dominant medical dogma).
3. Countries primarily affected by this epidemic have large marginalized populations, and health care systems "simply do not have the capacity to handle an outbreak of this size and complexity on their own ...", as stated recently by a spokesman of Medicine without Borders.

On this basis IMEOF is proposing to intergovernmental organizations involved in the outbreak, the possibility to include ozone therapy in the current medical treatments used to fight Ebola.

Ozone therapy is an absolutely safe treatment, \(^5\) which stimulates and modulates the immune system, which after a few cycles of treatment, the immune system is able to turn the balance and control the infection with no side effects for the patient, and that has helped many patients to control chronic viral infections such as hepatitis C, herpes, HPV, HIV, the virus Chikungunya and many others. It is a treatment which has been successfully used. It has


scientific support which backs its application with minimal secondary or nonexistent side effects. This treatment has easy and simple implementation that could be readily available in large quantities at low cost, even in the poorest areas of the world, which now could save thousands of lives and help to contain the epidemic. The benefit of applying a useful treatment outweighs the potential risks to people who are receiving an experimental drug.

**Brief history of the virus**

Ebola was first detected in 1976 in two simultaneous outbreaks occurred in Nzara (Sudan) and Yambuku (Democratic Republic of Congo) with a mortality rate of 88%. The village where the second outbreak occurred is located near the Ebola River (Democratic Republic of Congo), which gives its name to the virus. In 1995 an epidemic in Kiwit (in the then Zaire) affected 315 people and killed 254 (81%). In January 1996, the variety Ebola-Zaire attacked Gabon, with 31 diagnosed cases and 21 deaths.

The first outbreak of the XXI century was detected at the north of Uganda in Gulu district, where the variety Ebola-Sudan infected 425 people, of whom 224 died in 2000. A new outbreak was confirmed in Gabon, which subsequently spread it to the neighboring Republic of Congo between 2001 and 2002. The balance of WHO were 65 cases with 53 dead in Gabon, and 59 cases and 44 deaths in Congo.

In 2003, 143 people were affected in Congo by the Ebola-Zaire variety. 128 died (90%). And in 2007 the disease reappeared in the Democratic Republic of Congo, which affected 264 people and killed 187. The same year also Uganda had an outbreak in the western district of Bundibugyo, with 149 infected and 37 deaths. In March 2014 an outbreak in Guinea, caused by the Zaire strain, the most deadly form of the virus known, left hundreds dead. This summer, another outbreak has claimed the lives of nearly thousands of people in Guinea, Liberia and Sierra Leone.

Despite the antiquity of these pandemics, nearly 40 years after the first outbreak detected, real progress remains dramatically low.

There are five varieties of Ebola: Sudan, Zaire, Reston, Côte d'Ivoire (Ivory Coast) and Bundibugyo. The Sudan, Zaire and Bundibugyo types are those that have been associated with significant outbreaks of hemorrhagic fever in Africa.

**How is it spread?**

The Ebola is transmitted to humans by wild animals and spreads in populations by direct contact with human blood, body fluids (saliva, sweat, urine, vomit) or tissues of infected persons. The incubation period varies from two to 21 days, but more often it is five to 12
days. Although monkeys have been a source of infection for people, it is considered that fruit bats of the Pteropodidae family are the natural hosts of the virus.6

Why there is no more information about medical ozone?
Ozone is a very unstable gas that cannot be packaged or stored, so it has to be generated in situ at the time of its application. This is one of the main reasons why this treatment is not available in this international emergency. If medical ozone could be packaged, would have been sold at exorbitant prices in pharmacies. The inability to bottle it makes that the pharmaceutical companies do not have control over the therapy. This is the main reason why most of the world has been kept in the dark about the benefits of medical ozone. It cannot be packed or patenting, it is present in nature and is produced by the same organism (by neutrophils), and therefore it is not in the interest of the pharmaceutical companies to implement ozone therapy due to the great monetary loss which could signify for them.

Routes of application of ozone
There are various routes of therapeutic administration of ozone: Major Autohemotherapy, ozonated saline solution and rectal insufflation.7

In the case of Ebola infection, the rectal insufflation 8 is the method of choice to apply immunomodulatory therapy, as it prevents and minimizes the risks to the health personnel of the repeated veno-puncture at the moment of administers it. It is a simple, feasible and practically free of side effects as long as the doses are correct. It has been demonstrated the low toxicity effect of rectal insufflation in experimentally, clinical and preclinical studies.

The only routes of administration of ozone that are absolutely prohibited, are inhalation (toxic to the respiratory tract) and direct intravenous due to the risk of air embolism.9

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6 For more info: http://www.20minutos.es/noticia/2106358/0/ebola/epidemia/claves/#xtor=AD-15&xts=467263
Ozone therapy and Ebola in Spain

In Spain the virus has already claimed the lives of two religious missionaries who were working in Africa. After admission in the Hospital Carlos III in Madrid on the morning of September 22, 2014 the religious Manuel García Viejo, "all hopes were centered on Zmapp treatment, a drug that probably helped save the lives of five of the seven people that received the experimental treatment. However, on Monday, September 22, 2014 officials of the Ministry of Health reported that stocks of this therapeutic option were exhausted (Madrid newspaper El Mundo on September 23, 2014).

As confirmed in a press conference, the General Director of Public Health, Mercedes Vinuesa: "The Spanish Agency of Medicines works with all international organizations and international companies to get the treatments available."

"Besides of TKM (another experimental treatment developed by the Canadian Pharmaceutical Tekmira) or transfusion of plasma from patients who have overcome this virus, in the last hours has become possible to test a new compound, manufactured by the same company that develops the ZMapp and is even more experimental than this one."

On September 22, "Mapp Biopharmaceutical laboratory director offered to ministry officials the possibility of sending less tested dose of this compound." 10

As with the TKM and serum of recovered patients, the Ministry of Health has asked various headings of this new compound, unfortunately not longer to treat the monk García Viejo, because he died on Sept. 26 because of a systemic organic failure caused by the virus. The monk and doctor García Viejo only received a life support treatment (maintenance the balance of fluid and electrolyte balance, circulatory volume and blood pressure). Fernando Simon, director of the Center for Coordination and Alerts and Health Emergencies of the Ministry of Health has stressed that this is a special situation in which the treatments that are available are experimental, i.e. "No trials have been made about its safety and effectiveness" therefore "the evidence that this works in Ebola is null."

In front of this alarming situation that does not have an answer (yet) and keeps claiming human lives, and that the monk García Viejo had no choice whatsoever to any alternative treatments, rather than life support, AEPROMO (Spanish Association of Medical

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Professionals in Ozone Therapy, founding member of IMEOF) through its president Dr. Adriana Schwartz, contacted in several times by both phone and e-mail, the Spanish Ministry of Health, Health authorities of the Community of Madrid, the managers and medical staff who had the case of the monk Garcia Viejo. AEPROMO offered them the opportunity to administer ozone therapy to the patient. At the insistence of AEPROMO the only telephone response received was that the medical team had decided not to consider the possibility of using ozone therapy. AEPROMO decided to send a registered fax "to allow us the opportunity to urgently present our scientific medical proposals and not rule our intervention without any support."11

Despite repeated insistence of AEPROMO and that "it is the patient who must decide whether he submit himself or not to this or to other type of treatment" as stated by the Community of Madrid Primary Care Director Antonio Alemany, 12 it was denied even the opportunity to express our views. And worst of all, it was denied to the patient the chance to receive a treatment which is scientifically tested and is safe in it application.

Not satisfied with the response of the administration and of the medical staff, AEPROMO also contacted the catholic religious congregation to which belonged Dr. Manuel Garcia Viejo, the Hospitaller Order of St. John of God. The monk Julian Sanchez replied that all procedures related to the patient's health had been directly assumed by the health authorities and therefore the Hospitaller Order of St. John of God had no interference or contact with the patient and that they followed his medical evolution through the press. Unfortunately time was against and the religious Dr. Garcia Viejo finally died.

Upon the death of García Viejo the brother Julian Sanchez wrote to AEPROMO: "Thank you for joining the pain that right now are suffering the religious community and collaborators of the Order, as well as their families. We have promptly received the information about the assistance offered by the President of AEPROMO that has been offered to help the brother Manuel. We appreciate the interest and efforts that have been made although the results were not the one we expected. Kind regards. Brother Julian" 13

**Brief scientific analysis of the ability of ozone to treat Ebola**

11 AEPROMO. Registered fax sent to Madrid Carlos III Hospital, Subdirector Dr. Yolanda Source, September 25, 2014.

12 Qué alternativas de tratamiento tiene García Viejo? [Link](http://www.elmundo.es/salud/2014/09/23/54203746268e3e143e8b4586.html)

13 E-mail September 26, 2014
The antiviral activity of ozone, includes capsid damage, oxidation of the lipid envelope, changes in the structure that prevent receptor binding and penetration into a new cell. The antiviral action is observable in lower concentrations than in the bactericidal. This is because the viruses have less structural complexity in the wall membranes than in the bacteria.

Inside the body the virucidal and bactericidal capacity of O3 is achieved by stimulating the immune system and not by the direct attack of the microorganism. The ozone has immunomodulatory action, since it is able to modulate the immune response by stimulating the activity of leukocytes and the production of cytokines, interferons and TNF-a. The H2O2 formed after decomposition, enhances the body's defense capability.14

The ozone action on the immune cell is compared with the effect caused by mitogens. In citocinetic induction of immunocompetent cells, the lymphocytes CD4 + T (cooperators, helpers, ) activated by macrophages produce cytokines that initiate intercellular communication in their role as messengers. The IL-2 released by these cells, is responsible for the activation and differentiation of the T cell, activation of natural killer cells (NK) (spontaneous cytotoxic) induce cytoxicity of CD8 + T cells and promotes the activation and proliferation of B cells, hence these cells are considered a mainstay in the cell-mediated immune response. Thus, the activated CD4 + T lymphocytes trigger a complete cascade of immune reactions.15

Activation of CD8 + T cells, macrophages, neutrophils, eosinophils, NK cells and the activation of cell cytotoxicity depending of antibody, establish immune effector mechanisms to destroy virus-infected cells, tumor cells or kill bacteria and parasites. 16


In appropriate dosage, ozone is an inducer of IFNα, FNTα, IL-2 and IL-6, which have antibacterial and antiviral activity and does not cause cell damage.

Another aspect of interest of the ozone as an immunomodulator during controlled "microxidación" that occurs after its administration whose “vaccine effect”, is the induction of a favorable activation response of the antioxidant systems. The ozone has a controlled oxidative effect that stimulates and regulates the activities of antioxidant enzymes: glutathione reductase, glutathione peroxidase, superoxide dismutase, catalasa. From reactive oxygen species (ROS), H$_2$O$_2$ is the most important metabolite or derivative ozone oxidant, which as essential messenger, regulates signal transduction and biological effects of ozone, including the immune system.\textsuperscript{17}

From interaction of ozone with fatty acid and lipid generates products of lipid oxidation (POL) which are also responsible for chemical messages to cells. Induction of cellular glutathione, hemo oxygenase 1 and heat shock proteins are some of the ways in which the POL induce antioxidant activity.\textsuperscript{18}

Medical ozone can be used as a drug with general regulatory activity, which exerts its effects by stabilizing the cellular redox balance. The POL and the H$_2$O$_2$ generated by the decomposition of ozone act as signaling molecules in stress which improves cellular energy balance and immune system for the benefit of numerous diseases. It is considered by many authors as a drug capable of modifying the biological response by the multiplicity of action and the generation of intermolecular signaling.\textsuperscript{19}

\textsuperscript{17} Bocci V, Borelli E, Travagli V, Zanardi I. The ozone paradox: ozone is a strong oxidant as well as a medical drug. Med Res Rev. 2009; 29: 646-82.


It has been proven the effectiveness of ozone therapy (OT) to modulate the immune system to induce the production of cytokines from mononuclear cells and regulating blood oxidative stress by stimulation of antioxidant systems. It is known that in the acquired immunodeficiency syndrome chronic oxidative stress occurs, therefore, the antioxidant system of defense is altered. There is also a decrease in the levels of ascorbic acid, tocopherols, carotene, selenium, superoxide dismutase and reduced glutathione; elevated levels of malon hydroperoxides and aldehydes and severe effects on the inflammatory response in lymphocyte proliferation and apoptosis. In this syndrome was observed (at different researches) a decrease in viral load by more than a third, and increased values of CD4 + lymphocytes after therapy of ozone.20

There are various routes of therapeutic administration of O3. 21

The Major Autohemotherapy (MAHY) with O3 should be taken as an endogenous cytokine therapy, with concomitant release of physiological cytokines inherent to the body.

In the immunological context it has been proven that rectal insufflation of ozone can dramatically influence the lymphoid tissue associated with the digestive tract mucosa. Rectal insufflation with oxygen / ozone is one of the oldest forms of application of ozone therapy. The evidence existing at the present of the results of studies in both animals and humans, has shown that this route may be used as a systemic therapeutic approach safely.

It has been observed that in the colon-rectal mucosa of rabbits that received ozone rectally, O3 immediately dissolves in the water overlying epithelia and reacts with the feces, mucoproteins and other biomolecules present, generating H2O2 and POL. 22


The POL, $\text{H}_2\text{O}_2$, and oxygen pass through the muscles and are absorbed via the lymphatic and venous capillaries, reach the liver and enter the general circulation. This has allowed it to be considered a viable alternative for Major Autohemotherapy (MAHY), indicated for the treatment of hepatitis B and C and the immunostimulating therapy systemically.\(^{23}\)

Rectal insufflation is the method of choice to apply this immunomodulatory therapy against Ebola, as prevent the repeatedly veno-puncture, it is a simple, secure, feasible and practically free of side effects as long as the doses are appropriate. It has been demonstrated the low toxicity effect of rectal insufflation in experimentally clinical and preclinical studies.\(^{24}\)

**Ozone, water and air**

There is no evidence yet that the Ebola virus can be transmitted through aerosol in suspension by the air. However it may be useful to get environmental ozonators for domestic use to let them operate in homes and hospitals. The water can be treated with ozone to remove any vestige of any kind of infection.

**IMEOF call**

IMEOF calls to all associations of ozone therapy, whether they are members or not of IMEOF and to all ozonetherapists physicians worldwide, to constitute a medical team that can travels

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\(^{23}\) Madrid Declaration on Ozone Therapy, 2010, Document signed by 40 national and international associations of ozone therapy so far; it is translated into 12 languages. [www.aepromo.org](http://www.aepromo.org), [www.imeof.org](http://www.imeof.org), [www.isco3.org](http://www.isco3.org)


to major areas of pandemic to train and apply the treatment. The call is also extensive (and of course) to commercial companies of medical ozone generators to donate generators and supplies to help us in the delivery of the therapy in countries affected by Ebola.

The medical protocol we already have it ready.

It is worth remembering that ozone therapy is a "medical act" and can only be performed by trained health professionals and act according to previously established protocols by the organized international scientific community.

IMEOF is making all possible efforts and making available to the WHO, the International Red Cross, medical NGOs and religious congregations that are working with affected Ebola patients in order that ozone therapy is included in all countries affected by Ebola.

We can make possible a better world with the help of all!
WHITH YOUR HELP, YES WE CAN!

Dr. Adriana Schwartz
President of IMEOF /AEPROMO
Madrid, October 7, 2014