



Oxygenate yourselves! -The Hyperbaric Centre Magazine

N. 26 – March-April 2016



In 2010 the Hyperbaric Centre of Ravenna started a new experience with the blog www.iperbaricoravennablog.it. The aim of the blog was to share the stories of the patients because we believe that the solution to the problem of one person is the solution to the problem of so many others.

This experience led to "Oxygenate yourselves!", The blog magazine of the Ravenna Hyperbaric Centre. The magazine is a new tool to read and preserve the most widely read stories. This number contains the articles most-read in March and April 2016. Enjoy the reading!

Spondilodiscitis, after 20 session of Oxygen therapy Maria feels better



Maria is a nice lady from Sardinia who was diagnosed with spondilodiscitis.

Last year, in February, she went into the hospital and after long months of pain and suffering she was dismissed in

May with a clear result: spondilodiscitis.

She couldn't stand the pain in her back but Maria didn't give up: she went to the Rehabilitation Centre of Macomer, in the province of Nuoro, where a doctor suggested her to try the Hyperbaric Oxygen Therapy. Therefore, she found out about the Hyperbaric Centre of Ravenna, easy to reach even from Sardinia.

In September she took the flight to Bologna and she reached our centre for her first visit with the Doctor Nedjoua Belkacem, who suggested to associate the hyperbaric oxygen therapy with a rehabilitation therapy. Maria started immediately the hyperbaric therapy: 2 session of 90 minutes per day for a total amount of 20 session to complete the therapy.

The spondylodiscitis is a pathological process that affects the intervertebral disc and the adjacent bone tissue. The hyperbaric chamber therapy, due to its antibacterial and anti-inflammatory effect, helps reduce the infection and the inflammation.

Maria noticed improvements day after day. Especially, she realised the positive outcomes of the association of the hyperbaric therapy with other therapies: osteopathy, practiced by Dr. Marco Gaudenzi, and neural therapy of Dr. Torregrossa.

At the hyperbaric centre of Ravenna she felt welcomed and "at home". Being a nurse she knows what it means to work in a health facility. She said: *"I was actually very impress by the patience and the attention that all the staff had for me"*. At the end of the month, Maria finally doesn't feel any pain anymore. She is back at home in Sardinia, and after a resting period she can go back to work and to her everyday life.

Dear Maria, it was nice to have you with us. Your smile and your kindness became part of our day with you at the Hyperbaric Centre, and we are delighted to know that the treatment you received here allowed you to go back to your patients and to the job you love.

A huge hug from all the staff of the Hyperbaric Centre of Ravenna!

Vasculitis and Renaud syndrome caused by lupus, HOT can help



Good morning.

I am writing you because I found the story of Mr. Luciano from a web search for "necrosis in the fingers". The situation is the following: a relative of mine had bruising in her right big toe during pregnancy.

The problem had been underestimated because it was thought to be related to the pregnancy. Two months after she delivered, the pancreatitis started: her fingers started to become purple and she lost sensibility to her foot.

After tests she was diagnosed with an autoimmune disease, which still not identified. It's thought to be vasculitis, Renaud syndrome caused by lupus.

She started treatments with immunoglobulin and vessels dilators. The latter, are suspected to have worsen the situation, causing pancreas hemorrhage and fingers' necrosis.

Up to today, after a surgical intervention, the pancreas is healed, but the necrosis still in place. A Doppler ultrasound showed that the blood is circulating properly, but it pulsates to the fingers causing severe pain.

The only treatment she is currently taking to slow down the autoimmune disease it's the plasmapheresis alternating with immunoglobulins. She is not taking anything for the necrosis, only pain killers which do not give her any relief anymore, while keeping her hands warm makes her feel a bit better.

I would like to know your opinion on an eventual hyperbaric therapy, if there are any side effects and if you have treated similar cases before.

Looking forward to your answer, many thanks

Raffaella

Doctor Claudia Rastelli responds



Good morning Raffaella,

the case that you described me is quite complex, so it would be better to see the clinical examinations that have been carried out and the papers of the visits in order to have a more detailed and complete picture.

Plasmapheresis and immunoglobulin are used to keep under control the disease and even the necrosis of the extremities. In fact, the Reynaud's syndrome is part of the family of autoimmune diseases in which the body attacks itself. In this case it attacks the endothelium, that is the coating of vessels.

This results in an alteration of the capillaries that undergo spasms which momentarily interrupt the arrival of blood to peripheral tissues (and therefore the arrival of nutrients and oxygen). It follows that the tissues are subject to ischemia and subsequently to necrosis.

The cold, the smoke, the stress and vibration worsen the situation. In a short time, the tissues, suffering of lack of blood, are subject to necrosis, ulcerations and very strong pain.

At the Hyperbaric Centre of Ravenna we treated many patients who suffered from this disease. The hyperbaric oxygen therapy lead to an increase in the blood flow going to the tissues and it reduces the spasms of the vessels, improving their oxygenation by producing nitrogen monoxide.

The result is a reduction of the episodes of ischemia and of pain and an improvement of the quality of tissues. Additionally, it prevents formation of any ulcerations.

In association with the HOT we recommend the use of vasodilator drugs to be taken intravenously or orally (it would be better to assess which is the best in your case) and an antiplatelet therapy.

Another useful therapy that we carry out at our centre is FREMS (Frequency Rhythmic Electrical Modulation System) an electro-stimulation that

stimulate endothelium of the blood vessels to release more nitric monoxide (nitrogen monoxide is useful because it causes expansion of the vessels) which enhances the painful symptoms and the blood supply to the tissues.

Please, feel free to contact our centre for further information by calling our office at the number +39.0544.500152.

Best regards

Dr. Claudia Rastelli

*Degree in Medicine and Surgery at the University of Ferrara
Order of Surgeon Doctors of Rimini n. 2074*

Problems with broken bone consolidation: how oxygen therapy can help Davide



Good morning,

Four months ago I reported a multi-disjointed fracture at my right radio, I wore a cast for 40 days and then a support for another 40 days.

The fracture is healing very slowly, and after 4 months my orthopaedist talks of delayed healing but not pseudoarthrosis. I am doing a magnetic therapy 8 hours per day, and I'll start soon sessions of blast waves.

It is 4 months now that I do not work and I do not do sports, I want to ask you whether, in this case oxygen therapy can help me to recover as soon as

possible and help me to finally heal from this fracture.

Thank you. Best wishes,

Davide

Doctor Andrea Galvani responds



Good morning Davide,

thank you for writing us. I'm sorry for your long convalescence: fortunately you are already following several viable therapies

to complete the healing process!

At the hyperbaric centre of Ravenna, whether there is clinical indication, and after a specific medical examination to rule out any possible contraindication relating to the hyperbaric therapy, we propose a particular treatment for bone fracture. The treatment involves usually 20-30 sessions of hyperbaric chamber at 2.2/2.5 Bar pressure, and each session last 90 minutes.

To shorten the therapy time you can also chose the intensive program with two session per day. A physiatrist will take care of prescribing, following and coordinating all the physical and rehabilitative aspects required in your case (physiotherapy, hydrokinetic therapy, magnetic therapy, etc.)

The bone fractures treatment is not paid by the National Sanitary System. For any further information or clarification please contact our office by calling the +39.0544.500152 or by email segreteria@iperbaricoravenna.it

Wishing you a fast healing, I give you my kindest regards,

Doctor Andrea Galvani

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Edema of the ankle treated with ultrasound is still swollen



First of all, congratulations for your job. I want to introduce you my problem: 33 days ago I had a severe contusion to the inner ankle, without fracture and without any tendon damage, but with injury to the ligaments.

After three days the ankle appeared swollen and with a remarkable edema, which was treated with ultrasound and draining massages.

The ankle has deflated by about 60%, the bruising is gone and I have only a bit of pain.

However, the ankle does not totally deflate and it remains swollen. What should I do?

Thank you in advance,

Bruno

The physiotherapist Paola Mengozzi, responds



Hello Bruno,

Thank you for your attention and your esteem.

First of all, it's not clear what ligaments are injured, and if they are partially or totally damaged. Have you done any ultrasound or MRI test?

The therapy you've done so far was really good: the draining massage to reduce the edema and ultrasound to remove inflammation (ultrasound are

usually recommend after the acute phase is over, when the edema is gone).

I would like to tell you also what we do here at the Hyperbaric Centre of Ravenna when we deal with cases similar to yours. First of all, we apply a bandage medicated with zinc oxide and coumarin (these are effective in reducing inflammation and edema). Later, we proceed with the physical therapy: TECAR therapy, laser therapy (high-power laser with neodymium YAG, allows to bio-stimulate the repair and resolution of edema) associated with draining massages, the application of neuromuscular tape and water rehabilitation treatment. Last but not least, it is strongly recommended to work on the proprioception, very important for the control of the muscles movements, and a focus on muscle reinforcement to be done with elastic tools at the gym in order to make the ankle stronger to prevent further trauma.

Good luck for your ankle recovery, and if you have any further questions do not hesitate to contact our office at the number 0544-500152, or email segreteria@iperbaricoravenna.it.

Best wishes,

Paola Mengozzi

Degree in Physiotherapy at the University of Ferrara

Necrobiosis Lipoidica due to juvenile diabetes: what to do



My daughter has had diabetes for 10 years. In the front part of her left leg, in the tibia, she was found

to have a necrobiosis lipoidica. We were told that there is nothing to do about it, however, it continues to grow and has a circumference of 4 cm.

We wanted to know if there is a chance to do something since it is getting bigger, and we are seeing our daughter getting very demotivated.

Look forward to your answer.

Thank you very much,

Gloria

Klarida Hoxha, nursing coordinator, responds



Dear Gloria,

I am very sorry for the problem that your daughter is facing. Girls who, like her, suffer from juvenile diabetes deals with these specific consequences.

Necrobiosis Lipoidica is an unsightly complication: it starts with the formation of small dark red spots on the legs. Over time the spots become whitish and increase their consistency. It is a rare disease (affecting 0.3% of diabetic patients, usually young women with good glycemic control). The causes of this disease are unknown, although it is presumed to be of autoimmune nature.

In literature, multiple treatments have been analysed, but unfortunately none of these led to consistent results. Here at the Hyperbaric Centre we have studied and developed a treatment that allows to improve as much as possible the aspects related to the necrobiosis lipoidica. We have already treated with good results other young patients suffering from this condition.

The treatment is customized and it includes:

- Pharmacotherapy for the control of the immune response
- Sessions of PRP: platelet rich plasma that stimulates tissue regeneration
- Possible intervention of minimally invasive surgery for the removal of injury
- Laser therapy

- The neurostimulation device with FREMS technology (Frequency Rhythmic Electrical Modulation System) that allows to increase the “vessels’ motion”, meaning the activity of the rhythmic pulse of the vessels’ smooth muscle that regulates the microcirculation activity. Consequently, it improves microcirculation. Also in case of diabetes, which alters the nervous part, the neurostimulation improves the perception when peripheral neuropathy occurs.

- Hyperbaric Oxygen therapy: through the synthesis of nitric oxide, the HOT modulates the immune response and the vasculitic damage. It induces the formation of new blood vessels from the wound edges, it increases the activity of fibroblasts and the deposition of new collagen fibres.

In order to follow this treatment it is extremely important that the patient has a good glycemic control and glycated hemoglobin value lower than 9%.

If you are interested to pursue this treatment, you can ask for more information by calling our office at +39 0544 500152. We will evaluate your situation to identify the most adequate solution for your case.

Klarida Hoxha

Nunzia has a clear skin mark, what to do to get better



Months ago I got a little burn waxing. After few days, it remained only a little mark. I was prescribed a treatment with cortisone, which has worsened the situation considerably.

What should I do? Now I have a red and a dark spot.

Nunzia

Doctor Claudia Rastelli responds

Dear Nunzia,



In order to give good advice about your case, it would be appropriate to see the "mark" that bothers you and your skin type.

The spot that was formed after you got burn is due to the fact that the skin, damaged by the heat, lost the first layers that serve as protection, making it more likely to get dark and pigmented if exposed to sunlight.

The repair process and inflammatory cells produced by the trauma can promote an accumulation of protective melanin around the burn leaving the skin darker than it was before.

It is essential to apply a sun screen cream in the area of the mark in order not to further stimulate the melanin production.

Also, according to the type of mark and to your skin type, there are several treatment such as the application of whitening cream that can be done at home or chemical peeling to be performed in clinic.

Machines such as pulsed light, laser or other machinery that sublimate the surface layers of the skin and eliminate the hyper-pigmented skin can be useful for surface marks.

Depending on the treatment you will choose, one or more sessions must be carried out to eliminate the colour differences.

It is very important to remember that skin treatment should be carried out in the winter time. Since they remove the surface skin layer, the skin is scarcely protected from sunlight and more susceptible to hyperpigmentation.

If you need more information about these treatments, you can contact us directly at the phone number +39 0544500152 or write to segreteria@iperbaricoravenna.it

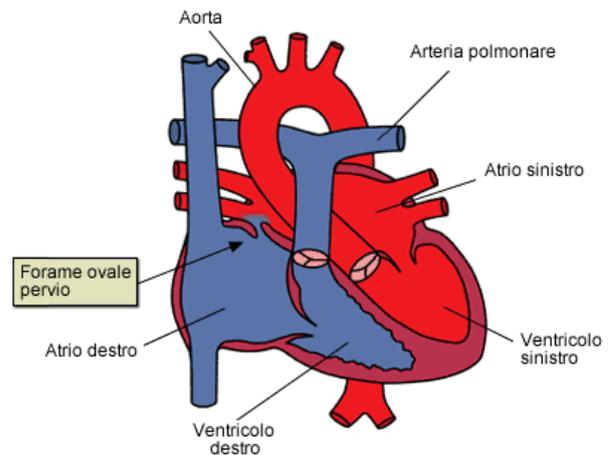
Best regards

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PFO: is it better to close it?



Good morning,

At the end of September I had a disorder to my left arm with tingling and loss of power, difficulties to speak and tingling on the left leg for about half an hour.

Brought to the hospital, I've done all the tests in the centre for stroke: tc, echocardiography, MRI, blood tests, transcranial, transesophageal ultrasound. It resulted that I have a Patent Foramen Ovale (PFO) and a high level of homocysteine, positive to genetic mutation.

I do sport, I do not smoke and I do not drink: in fact there were no plaques except for a small one in the neck.

I have been prescribed asgriptin tablet for cholesterol (that I was already taking) and betaine. I didn't report cerebral damages, just the arm continued to tingle for a few months. They told me not to intervene surgically, and that makes me feel nervous.

Now, I have heard the opinion of another cardiologist who told me that perhaps it is better to close it surgically, since my son had to do it for ischemia when he was 20 years old and my father

had a first stroke when he was 55 and a second one that led to death at 64.

I would like your opinion.

Thank you,

Marco

Doctor Luigi Santarella responds



Dear Marco

Thanks for your attention and your esteem.

From your story is not clear whether what happened to you is due to diving. If this is the case, I would ask you to kindly provide me with more information: number of diving sessions per year, type of patent, dive profile that has allegedly caused you the problem and environmental conditions in which it occurred. Additionally, it is necessary to know if in the past you had any problem while practicing scuba diving. These data are essential to understand your problem.

Assuming that the incident happened while you were doing scuba diving, I understand that you have been subjected to numerous investigations from which emerged the presence of PFO (patent foramen ovale) and an hyperhomocysteinemia determined by the MTHFR mutation that is correlated with increased cardiovascular and cerebrovascular risk.

According to the scientific literature, an integration of Folic Acid, Betaine, B6 and vitamin B12, cofactors in the metabolic pathway of homocysteine, can reduce blood levels of hyperhomocysteinemia.

As for the presence of PFO, first of all it is necessary to make some clarifications: it is a channel that connects the heart right atrium to the left one, it is present in the fetus and it closes at birth.

This anomaly is present in about 30% of the general population, therefore many divers have it, but fortunately, among these only a small portion develops decompression accidents. Therefore, it is essential to quantify the "hole" and verify that its

presence is crucial in the development of decompression accidents.

In order to clarify if the presence of PFO is significant, whether or not other pathophysiological changes are present, the hyperbaric centre of Ravenna has developed a personalized diagnosis path that takes into account different scientific evidences and the advices of top experts in the field. After an adequate medical history and physical examination, the treatment involves:

- Transcranial Doppler with sonographic contrast (the presence of up to twenty bubbles determines a slight problem)
- Blood gases tests carried during pure oxygen breathing with high-flow mask. A partial oxygen pressure in the blood greater than 400 millimetres of mercury arteriosus is to be considered normal, while, a lower pressure, confirms the presence of a shunt in the circulatory system and allows us to identify the size of the shunt
- Transcutaneous oximetry to validate the information given by the blood gas analysis

The final decision is based on these results:

- Less than twenty bubbles and blood oxygen pressure greater than 400 mmHg: you can continue diving
- Over twenty bubbles and blood oxygen pressure lower than 400 mmHg: depending on the severity of the problem we decide whether to allow diving with precautionary rules or whether to proceed with the closure of the shunt.

Other factors that we take into account are:

1. previous cerebral ischemic or underwater decompression accident
2. instrumental evidence (CT, MRI, PET) of ischemic brain damage
3. risk of thrombophilia (homozygous positive for the Factor II, Factor V, Factor MTHFR, homocysteine, protein S)
4. transthoracic echocardiography positive for atrial septal aneurysm
5. transesophageal echocardiography positive for a PFO with dimensions larger than 4 millimetres

(the latter, being an invasive test, is only performed in preparation for surgery of PFO closure)

In case of closure of PFO, we recommend a rehabilitative controlled diving program that can be started after the first transthoracic Doppler ultrasound test (performed a month after the surgery). Six months after the surgery, you will do the final visit to receive the permission to dive without restrictions (within your patent's limits).

In your particular case, my advice is to do more investigations to clarify to which extent the foramen ovale may have been responsible for your accident and to control the homocysteine values. In this way you may go back to dive on an informed basis and with proper precautions, if necessary.

If you want a re-evaluation of your case, please contact the Hyperbaric Centre of Ravenna (tel: 0544.500152, or email: segreteria@iperbaricoravenna.it). You can book a visit with our neurologist (Doctor Paolo Limoni), a Doppler test and a visit with the doctor specialised in scuba diving for the final assessments and indication on the PFO closure. Visits and tests run every Tuesday and the commitment is half a day.

Kind regards,

Dr. Luigi Santarella

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