The Hyperbaric Centres of the DAN Europe Network – Barcelona

Spain is one of the countries that attracts the largest amount of dive tourists in Europe. The famous “Costa Brava” as well as Islands such as Baleari, Canarie and the entire coast, with their marine parks, bring in many tourists, both Spanish and from around the world. Together, the mild climate, and the ease of transport make a pleasant stay for divers.

In the 70s and 80s, with the widespread development of recreational diving, the use of recompression therapy systems, of which the Hyperbaric Therapy Unit of CRIS-UTH was already a leader, became necessary. Thanks to Dr. Jordi Desola’s initiative, CRIS-UTH joined what at the time was just the start of today’s DAN Europe. The DAN Network in this region (Spain, Portugal and Andorra) is now locally represented by DAN Ibérica, of which Dr. Desola is Director.

Today we are meeting with **Dr. Desola**, asking him some questions about the Hyperbaric Centre he coordinates in Barcelona.

AD: *Diving medicine has an old tradition in Spain, and CRIS-UTH, recently renovated, is a point of reference throughout the country, both for divers and non-divers. Can you tell us more about how this brand new centre is working now, and why you decided to move to the Moises Broggi Hospital in Sant Joan Despí – Barcelona ?*

JD: SCUBA diving started being practiced in Barcelona in 1947. Those pioneers founded CRIS (Centre for Underwater Research and Recovering), a very old institution in the field of diving, in 1954. The first monoplace recompression device was constructed in 1959, and the multiplace hyperbaric chamber was initially located in the Red Cross Hospital of Barcelona in 1965, and it was constructed just to treat cases of decompression injury; up until the 80s, the number of cases treated in this chamber was between 5-10 a year. Then, in 1980, the main hospital in Barcelona asked us to treat a non-diving case: it was a young boy, 14 years old, suffering from cronical refractory osteomielitis, with an affected jaw, which risked disarticulation.

He had been receiving hyperbaric oxygenation in a monoplace chamber, which due to technical problems was out of service. We replied that we were not yet prepared, since our chamber was not monoplace and could only host several divers at a time. Furthermore, it was designed only for divers (i.e., people in good physical condition before their accidents). By accepting that patient, we would be using the chamber every day to treat a single person with physical limitations. Also, we couldn't use hyperbaric oxygen, as was necessary for this patient, because the chamber was not designed for it and at that time only the use of compressed air was allowed.

New safety rules had to be introduced, with many complications and some risk! In April 28th 1980 we treated this patient for the first time. A couple of weeks later, we received a second case of osteomielitis, and some days later, a third case. Since then, we haven't stopped using the chamber for even one day!

Now we treat more than 30 patients daily… compared to only 10 a year at the beginning! For this reason, we started talking about converting the old recompression chamber for divers into a clinical centre of hyperbaric medicine, where patients who can benefit from hyperbaric oxygen can be treated.

We needed a bigger chamber, more modern, with capacity of critical care and every kind of treatment

available. In 1998 we had the opportunity to obtain a chamber that had been used in another Spanish hospital, which had closed. Then in 2008 we opened a hyperbaric facility in a new hospital, which would have a refurbished chamber. This enabled us to treat 18 patients at at once, meaning 36 patients a day, apart from emergencies. Now, each year, we are treating 200 cases of carbon monoxyde poisoning, about 20-25 diving accidents, and about one hundred of cancer patients suffering from complications produced by radiation therapy.

While the majority of patients are non-divers, divers can benefit from the efficiency of this new chamber, which operates daily and is in optimum condition. We have a team of chamber operators and nurses specialised in hyperbaric therapy, doctors who are on call and available 24 hours a day, allowing us to maintain the DAN hotline services.

AD: *Still, this unit is well known in the diving community as an excellent hyperbaric centre.*

JD: We try to do our best! Over the years, we have been open to suggestions from divers. We are not only treating more patients, from all over the country, but providing the best and most specialised treatment available for every patient. Not all centers and chambers are capable of treating dive patients in extremely serious conditions. Thanks to prevention initiatives, the number of diving accidents is fortunately very low, but when they happen, they can be extremely serious and require intensive care.

Q: Let's talk more about this relationship between the diving world and general medicine. DAN is conducting research through its DSL (Diving Safety Laboratory), addressing issues not only related to diving, but also general medicine. What's your opinion about this development?

A: The history of research in diving medicine has undergone different phases: military, oil/offshore/commercial industry... Now it's the recreational industry which has the greatest number of divers. An institution like DAN has a fundamental role in that. I had the priviledge of being one of the co-founders of DAN, together with Prof. Marroni. Our collaboration began in 1980, uniting the work we had been doing individually until then.

Q: Let's talk about your experience treating divers and non-divers. Is there a particular story about a case or a patient, that you'd like to share?

A: In 1978 I was still working in the old chamber. One day we were treating two Dutch divers who were almost ending their treatment when an 18-year old diver arrived. As I mentioned before, we were not allowed to use oxygen in those days, so we had to bring the Dutch divers back to 50 meters in order to let the young diver inside, making us five people in the chamber. The young diver, whose condition was drastically worsening, was compressed to 50 meters and we had to complete a full US Navy Table 4 that lasted two days... Fortunately this does not happen today!

Divers must not forget that, even though diving is fun, accidents can happen. Once we dealt with a case of near drowning and arterial gas embolysm, combined with fever and pneumonia. After hyperbaric treatment the patient felt better, but the fever would not go down. We also consulted a specialist in internal medicine, and the patient was diagnosed with Hodgkin's disease, a type of lymphoma.

My medical advice to divers is that you should always keep in mind that diving injuries need medical attention. You should never accept hyperbaric treatment without medical guidance, but always under the supervision of a physician!

Q: So, the message is: Trust DAN and its recommended hyperbaric centres!

A: That is one of DAN's most important missions; choosing a suitable hyperbaric centre for an injured diver, and offering the best treatment he may need. When choosing a centre, the most important factor is not only its distance from the accident site, but its conditions and follow-up care.

Q: What's your final message to divers?

A: Safety starts with prevention, so I hope that anyone reading this will keep in mind the important messages related to dive safety published in this magazine, so that they will never need to confront dive medicine firsthand, beyond this article!