**Decompression Illness**

**Dr. Clair Ashford**. Medical Director, Diving Diseases Research Centre.

The final meeting of this season was held on Friday 26th April. Members expressed their thanks and appreciation of the season programme of talks to the President, Dr. Chris Westwood, as he introduced Dr. Ashford. They have all been very enjoyable and interesting; and this talk was no exception.

Dr. Clair Ashford is Medical Director of the DDRC, which we are fortunate to have in Plymouth as a world-class facility, and one of only 10 registered chambers around the country. She works 2 days a week at the DDRC and 2 days as a GP in Plymouth.

The DDRC provides a 24/7 Diving and Hyperbaric medical emergency service; hyperbaric oxygen therapy, medical training, fitness to dive medical examinations and research. They have one large hyperbaric chamber, which can accommodate up to 9 people, and two smaller chambers. They are situated right next to Derriford Hospital and work closely together although the DDRC is not part of the NHS but operates as a charity. They treat about 60 cases per year of Decompression Illness, around a third of their caseload.

Clair explained the physiology of Decompression Illness. This is often called ‘the bends’ from the effect noted when spinal decompression causes a bent gait. It is a disease of compressed gas divers which results in gas bubbles forming in the tissues as pressure decreases on re-ascending. Gas volume is decreased by a third at 20m depth (Boyle’s Law) and trebles on ascending to sea level. The body absorbs inert gases (nitrogen and helium) into the tissues at different rates according to blood supply; active muscles will form a lot of bubbles and fat very little. The bubbles are filtered by the lungs and released between the right side of the circulation and the left. Increased bubble formation and risk of DCI comes from longer, deeper and repeated dives. Clair played us a Doppler of the Subclavian vein before and after diving when we could clearly hear the bubbles in the circulation. These bubbles take space and cause damage by inflaming the vessel walls, risking ischaemia and infarction of tissue. DCI typically comes on with gradually worsening pain after coming up from a dive; up to 72 hours later. The treatment is oxygen (whatever the sats; O2 will displace the nitrogen) and transfer to the DDRC. HBO will be given for up to 7 hours with air breaks and often repeated over several days.

Arterial Gas Embolism is another emergency which the DDRC treat. This can occur following pulmonary barotrauma or iatrogenically following for example interventional radiology. This causes a rapid onset of symptoms and needs urgent treatment.

Electively the DDRC also uses HBO treatment on an evidence basis for problem wounds, necrotizing fasciitis, chronic osteomyelitis, severe anaemia, carbon monoxide poisoning and other conditions; although these are charity rather than NHS funded (currently politically disputable).

The DDRC currently has a vacancy for their board of trustees and they would very much like to appoint a person with a medical background so if any members are interested then please contact them directly.

29 members and guests enjoyed an extremely delicious Thai dinner following the meeting.