Research on Avascular Necrosis of Femoral Head

- Hyperbaric Medicine in Israel – The 25 Year Struggle
- Yehuda Melamed
- Avascular Necrosis of the head of the femur:
- Results of treatment of stage I by Hyperbaric Oxygen as compared to an untreated control group.

1Dept. Orthopaedics, Bnai Zion Medical Center, Haifa; 2MRI Unit, Dept. Radiology, Rambam Medical Center; 3Dept. Ortopaedics B’, Rambam Medical Center; 4Rambam-Elisha Hyperbaric Medicine Unit, Haifa; 5Marine Medicine Institute, Zahal, Israel.

Purpose: To compare the use of hyperbaric oxygen (HBO) and non-weight bearing in the treatment of Stage I avascular necrosis of the femur head (AVNFH) with treatment by non-weight bearing (NWB) only.

Methods: Vande Berg et al.’s (1) criteria for irreversibility of sub-chondral lesions assessed for thickness and length in AVNFH grade I were used to compare 16 AVN hips treated by HBO with Vande Berg et al.’s group treated by NWB only. 15 hips were "Idiopathic" AVNFH and 1 hip was in a steroid treated Lupus Erythematosus. Only AVNFH grade I was included: cases of bone marrow edema only or transient osteoporosis were strictly excluded as were higher grades of AVNFH.

Results: Irreversibility likelihood was 88% for thickness of lesion for the control group and 10% for the HBO group. For lesion length irreversibility likelihood was 73% in the controls as compared to 0% in the HBO treated group. Altogether the HBO group registered > 90% total resolution or reduction in size of the sub-chondral lesions (15 hips). The single failure was in the steroid treated Lupus case.

Conclusions: HBO treatment is highly effective in Idiopathic Stage I AVNFH.