

Joint Event

11th International Conference on

OSTEOPOROSIS, ARTHRITIS & MUSCULOSKELETAL DISORDERS &

10th INTERNATIONAL CONFERENCE ON ARTHROPLASTY

December 04-05, 2017 | Madrid, Spain

Hyperbaric oxygen treatment for symptomatic osteonecrosis of the femoral head stages I and II

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Background: Hyperbaric oxygen (HBO) therapy is one of the suggested joint preserving treatments for symptomatic early stage osteonecrosis of the femoral head (ONFH). Limited series of this treatment had been published to date.

Objective: We aimed to evaluate its effectiveness in a relatively large patient cohort.

Methods: We reviewed the files of 68 patients with 78 symptomatic ONFH joints stages Steinberg I and II that were treated at our medical health center with HBO. The pre-treatment and the immediate post-treatment magnetic resonance imaging (MRI) findings were compared. On follow-up, a phone interview was conducted. Noted was the survival of the joint. A modified Harris Hip Score (mHHS) and the 12-Item short form health survey (SF-12) questionnaires for the starting point of treatment and the time of follow-up were given and evaluated for statistically significant differences.

Results: 74 joints had undergone both pre- and post-treatment MRI. 88% of the joints improved on the immediate post treatment MRI. On follow-up of a mean 11.1 ± 5.1 years, 54 patients (58 joints) were located and answered the questionnaires. 93% of the joints survived. The mean mHHS improved from 19 to 74 ($P < 0.0001$), the mean physical component of the SF-12 improved from 24 to 46 ($p < 0.0001$) and the mean mental component improved from 54 to 59 ($p < 0.0001$).

Conclusion: We conclude that HBO treatment is effective in preserving the hip joint in stages I and II ONFH.

Recent Publications

1. Mont M A, Jones L C and Hungerford D S (2006) Nontraumatic osteonecrosis of the femoral head: ten years later. *Journal of Bone and Joint Surgery American Volume* 88(5):1117-1132.
2. Sharma S, Shah R, Draviraj K P and Bhamra M S (2005) Use of telephone interviews to follow up patients after total hip replacement. *Journal of Telemedicine and Telecare* 11(4):211-214.
3. Strauss M, Dvorak T, Melamed Y and Reis D N (2008) Femoral head necrosis and hyperbaric oxygen therapy. *Hyperbaric Medicine Practice*, 3rd ed. Vol.34; p.943.
4. Nylander G, Lewis D, Nordstrom H and Larsson J. (1985) Reduction of postischaemic edema with hyperbaric oxygen. *Plastic and Reconstructive Surgery* 76(4):596-60.
5. Camporesi E M, Vezzani G, Bosco G, Mangar D and Bernasek T L (2010) Hyperbaric oxygen therapy in femoral head necrosis. *Journal of Arthroplasty* 25(6):118-23.

Biography

Eyal Ginesin has completed his MD degree in 2011 from Semmelweis University in Budapest, Hungary. A year later, he was selected as an Excellent Internship. In 2013, he started his Residency in Orthopedic Department of Rambam Health Care Hospital and now he is pursuing his final year. During these years he has participated and published many articles including two book chapters. Regarding his academic experience he has given oral presentations in conferences including the annual meeting of the Israel Orthopedic Association.

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