

Evaluation of Hyperbaric Oxygen Therapy (HOT) in diabetic foot as classification of Wagner.

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Background: Diabetic foot is a significant complication of diabetic patients affecting 15 to 20% of them representing 50% to 75% of non-traumatic amputations in this population. The mortality after amputation reaches 50% after 3 years and 75% after 5 years. This study aimed to evaluate the adjuvant treatment with hyperbaric oxygen therapy (HOT) for patients with diabetic foot according to Wagner classification, identify the rate of improvement and the number of sessions required according to ulcer classification.

Materials/Methods: We conducted a retrospective study of patients treated in Center Mineiro Medicine Hyperbaric (CMMH), Belo Horizonte/MG, Brazil, from April 2001 to March 2016 (15 years of follow-up). The severity ulcer was classified by Wagner, Grade: 0 - foot at risk, but without ulcers; Grade I - superficial ulcer; II - deep ulcer reaching tendon, capsule bone or joint; III - osteomyelitis, abscess plant, tendinitis; IV - gangrene of the anterior or posterior half of the foot; V - gangrene requiring amputation up to knee. The answer Yes is defined by: A) completely healed injury; B) if the ulcer bed was in excellent condition for graft, proven by its success; C) when there was a clear demarcation, with greater security for amputation; Abn) abandonment; No) no response.

Results: Of the 607 patients studied response occurred in 417 (69%) (table 1). This study showed that diabetic patients are referred late to HOT: 461 (76%) patients were Wagner III, IV and V (most of them with more advanced lesions). In group IV, despite more serious injuries, where studies had shown eight times more amputations, we observed response in 135 (68%) and 4 amputation were avoided with 40, 60, 60, 177 sessions. In the group V, 9 patients (36%) responded to treatment with an average of 88 sessions, two amputations were avoided with 207 and 215 sessions.

Table 1- Answer to HOT according to Wagner classification for diabetic foot ulcers.

Wagner Classification	Number of patients	Yes [A x B x C]	Medium Sessions	Abn	Medium Sessions	No	Medium Sessions
I	18	16(89%) [16 x 0 x 0]	20	2(11%)	3	0	0
II	128	101(79%) [95 x 6 x 0]	35	22(17%)	14	5(4%)	25
III	239	156(65%) [139 x 10 x 7]	49	53(22%)	17	30(13%)	36
IV	197	135(68%) [106 x 21 x 8]	51	46(23%)	14	16(8%)	34
V	25	9(36%) [8 x 1 x 0]	88	7(28%)	10	9(36%)	23
TOTAL	607	417(69%) [364 x 38 x 15]	49	130 (21%)	12	60(10%)	24

Conclusions: Early initiation of adjunctive HOT is essential for obtaining a higher rate of improvement and reduces the number of sessions required for the healing of diabetic foot ulcer. HOT also been shown to reduce the risk of amputation.

