

## ABSTRACT

In development countries wounds was one of the most common causes of morbidity. Hyperbaric Oxygen Therapy (HBO) is increasingly used in wound treatment. Principal mechanism of HBO are based on intracellular generation of Reactive Oxygen Species (ROS) and Reactive Nitrogen Species (RNS) including Nitric Oxide (NO). In wounds area, its mostly generated by enzyme inducible Nitric Oxide Synthase (iNOS). The beneficial effects of NO in wound repair may be attributed to its functional influences on angiogenesis, inflammation, cell proliferation, matrix deposition and remodeling.

The objective of this study was to determinate whether Hyperbaric Oxygen Therapy (HBO) can improve iNOS expression and wound healing.

This study was a 'Randomized control group pre test-post test design' in 28 wistar rat. They were divided into 4 groups (random allocation). HBO treatment group 1 received 5 sessions HBO, HBO treatment group 2 received 10 sessions HBO, and each one a control group without HBO.

The result showed Hyperbaric oxygen therapy can improve iNOS expression ( $p=0,001$ ) and wound healing ( $p=0,002$ ) significantly in the provision of HBO 2,4 ATA 3x30 minutes as much as 5 sessions. While the 10 sessions of HBO only increasing iNOS expression significantly ( $p=0,002$ ) but did not improve wound healing. The conclusion of this study was HBO can improve iNOS expression and wound healing in the provision of HBO 2,4 ATA 3x30 minutes as much as 5 session. While the 10 session of HBO 2,4 ATA 3x30 minutes only increasing iNOS expression but did not improve wound healing.

Further research required on HBO repetition time interval after administration of 5 sessions (recovery period) and the use of HBO as adjuvant therapy for various types of wounds.

Keywords : hyperbaric oxygen (HBO), nitric oxide (NO), iNOS, wound healing