

Liberation of the interleukin-1 beta in macrophages stimulated using galvanic current

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Rev Fisioter Invasiva 2019;2:66.

Abstract	Introduction and Aims Percutaneous needle electrolysis (PNE) is a therapeutic tool
	which has demonstrated its effectiveness for the treatment of tendinopathies and
	muscle problems. However, there is a scarcity of basic and fundamental information
	directed at getting to know the effects of the same on the molecular level. The aim of
	the present study was to confirm whether, after the use of galvanic current on
	macrophages in culture, there is a liberation of pro-inflammatory cytokines.
	Material and Methods Using a special device designed for cellular cultures (Physio
	Invasiva® device, PRIM), two impacts were applied with a current intensity of 3 mA
	during two seconds to differentiated cell macrophage cell cultures of C57/BL6 mice of
	the bone marrow and previously stimulated with bacterial lipopolysaccharides (1 µg/
	ml, 4h). Once the currents were applied, the macrophages were incubated 16h and
	subsequently, the amount of interleukin-1 beta (IL-1b) was determined in the superna-
	tant of lactate dehydrogenase.
	Results The application of the galvanic current resulted in the liberation of IL-1b,
Keywords	without an increase in cell death. The Western blot study demonstrated that the IL-1b
 percutaneous needle 	that is liberated corresponds with the mature form of 17 kDa of this cytokine, therefore
electrolysis	we speculate that the galvanic current may induce the activation of the inflammatory
 galvanic current 	caspase, caspase-1, via the formation of inflammasomes.
 inflammation 	Conclusions The data obtained suggest that the liberation of IL-1b may regulate the
 cytokines 	inflammatory and therapeutic effects of the galvanic current.

DOI https://doi.org/ 10.1055/s-0039-3401887. ISSN 2386-4591. Copyright © 2019 by Thieme Revinter Publicações Ltda, Rio de Janeiro, Brazil

