

A comparison of total body water analyses: bioelectric impedance analysis versus the tritiated water method.

Miller SF, Carlson RG, Fegelman E, Quinones J, Finley RK Jr.

Department of Surgery, Wright State University, Dayton, Ohio 45409, USA.

Bioelectric impedance analysis (BIA) is used to measure the body composition and total body water of normal subjects.

The **purpose** of this study was to determine if the hydration of **patients with burns** could be assessed by BIA. Assessments of total body water as determined by BIA and the tritiated water method were prospectively compared.

The 2 analyses were performed 48 hours after admission for 5 patients with acute burns to determine the correlation of the 2 methods. The patients had a mean age of 36.4 $\pm$ 14.7 years (range, 20-56 years), a mean burn size of 39.4 $\pm$ 15.9% of the body surface area (range, 23%-65%), and a mean full-thickness burn size of 27.7% of the body surface area. The total body water was measured on admission and again at 48 hours postburn.

There is an excellent relationship between BIA and tritiated-water-method determinations of the total body water of patients with severe burns ($r = 0.958$). **This correlation suggests that BIA provides an accurate measure of total body water, and so it is a reliable means of monitoring fluid resuscitation in patients with burns.**