ABSTRACT

The aim of this work was to measure and evaluate the amount of body fluids of pregnant women during pregnancy and its link with other monitored parameters.

The Bioimpedance spectroscopy method used the *Body Composition Monitor* from *Fresenius Medical Care* in order to collect data on body fluid status in ten pregnant women enrolled in a longitudinal clinical study conducted in collaboration with the Faculty of Pharmacy of Charles University and the Department of Obstetrics and Gynecology at the University Hospital in Hradec Králové. The device measured bioimpedance on 50 frequencies in the range from 5 KHz to 1000 KHz and all women underwent a total of three examinations in specified periods (week 17–27, 28–35 and 36–38 week of pregnancy). During each measurement, main focus was compliance with standard conditions and correct execution.

During the study period, statistically significant changes in body fluid volumes were observed in women. The median total body water (TBW) volume increased by 3.8 l, the median extracellular water (ECW) volume by 1.4 l and the median intracellular water (ICW) volume increased by 2.3 l. The increase in body fluids was accompanied by a decrease in resistance values. Decrease in values during pregnancy was also shown in the overhydration parameter.

Spearman's correlation showed significant relationships between body fluids and pregnant woman's weight, height, and age. Pregnancy weight was strongly positively correlated with TBW volume ($r = 0,9052$; $p = 6,46*10^{-12}$), ECW ($r = 0,8865$; $p = 7,12*10^{-11}$) and ICW ($r = 0,8935$; $p = 3,04*10^{-11}$). Body height correlated positively with TBW volume ($r = 0,6979$; $p = 1,81*10^{-5}$), ECW ($r = 0,7557$; $p = 1,38*10^{-6}$) and ICW ($r = 0,6648$; $p = 0,0001$) and the age of the pregnant woman correlated negatively with TBW ($r = -0,4218$; $p = 0,0202$) and ICW ($r = -0,4749$; $p = 0,0080$). No statistically significant link between body fluid volume and gestational weight gain or gestational age alone was demonstrated. Other significant correlations were found with the measured body circumference, the thickness of the skin lashes and some skeletal parameters.

Key words: pregnancy, body fluids, bioimpedance spectroscopy