



Relevance of Measurement of Electrode Impedance following the Standard ANSI/AAMI DF80-2003

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1. Landsmøde i Dansk Medicoteknisk Selskab 19 - 20. september 2007

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Relevance of Measurement of Electrode Impedance following the Standard ANSI/AAMI DF80-2003.

Measuring impedances with defibrillator-electrodes mounted 'gel-to-gel', following the standard ANSI/AAMI-DF80-2003, are not representative for the impedances during discharge, with the electrodes applied to skin.

For a comparative study of 2 brands of Defi-Pads a pork-loin with rind was chosen as a sufficient substitute for a patient. With four Defi-pad-positions on the skin-side, a protocol was followed, using 'paired tests' to reduce the influence of position, drying over time, changes in the defibrillator over time and changes in the skin due to discharges.

The pork-loin skin-side was wiped with towels and air-dried 40 minutes.

28 Bi-Phasic discharges of 100 Joule was given, using a Medtronic Lifepak 20 defibrillator, which measures the impedance during discharge. For each of the first 12 discharges, electrodes and position was changed. The following 16 was given in series of 4 between changes.

The impedances measured 170-220 Ohm, Fig. 1.

With SD=3,8 Ohm, significance >99,95% (omitting one pair), the difference between the brands was 17 Ohm average, dissipating 20% of the energy with a normal patient impedance of 70-80 Ohm.

This is not recognized from the 'AC Large-Signal-Impedance' of 1,1 Ohm for both brands, following ANSI/AAMI-DF80-2003.

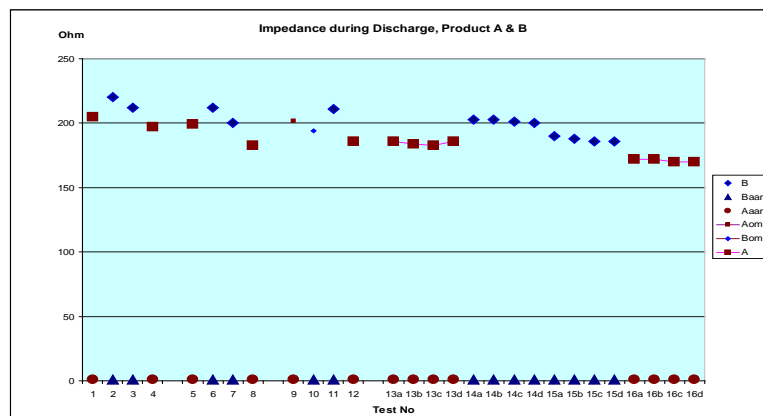


Fig. 1