Transthoracic Ventricular Defibrillation in Adults: Effectiveness of Quasi-sinusoidal Biphasic Waveforms.
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Our study evaluates the efficacy of quasi-sinusoidal asymmetrical biphasic waveforms in patients (pts) (n=48) needing defibrillation for ventricular fibrillation (VF). Thirty-five pts received shocks for spontaneous primary or secondary VF. The number of episodes of spontaneous VF were 53. Thirteen other pts had induced VF. Diameters of hand-held electrode paddles were 11.5/11.5 cm and 8/8 cm (4 pts). The operator selected an initial shock energy settings of 11-65 Joules (J) (delivered on 50 Ω load). The actual transthoracic impedance (TTI, Ω), delivered energy (DE, J) and peak current (I, A), were measured for each shock. Waveforms of current had second phases = 40-60 % of the first ones. All data are presented as the mean ± SD. Defibrillation was successful in all pts. Induced VF: I=14.3±4.0 (7.5 -21) A, DE=45.8±21.2 (11-77) J, TTI=63.7±16.6 (40-95) Ω. Spontaneous VF: I=17.7±7.7 (8-43) A, DE= 66.5±42 (15-205) J, TTI=65±21 (22-117) Ω. Only 3 pts with acute myocardial infarction and secondary recurrent VF did not defibrillate by the first high energy shocks in a few episodes VF (140-190 J). It is interesting that in 43 of the 53 (81%) episodes spontaneous VF, defibrillation was succeeded with shocks ≤ 95 J. These results demonstrate high efficacy of transthoracic low energy biphasic shocks in defibrillation.

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