

Tang W, Weil MH, Klouche K, et al. Effects of low- and higher-energy biphasic waveform defibrillation on success of resuscitation and post-resuscitation myocardial function. *Circul (suppl)* 1999;100(18):I-662 (Abstract #3491).

Purpose

To determine whether the initial resuscitation success, or the incidence and severity of post-shock dysfunction, are affected by the amount of *biphasic* energy delivered.

Methods

Ventricular fibrillation (VF) was induced in 10 domestic pigs. Following 7 minutes of untreated VF, pigs were randomized to receive up to 3 biphasic shocks, using either low- (150 Joules; J), or high-energy (200 J). For animals not resuscitated within 3 successive shocks, a minute of cardiopulmonary resuscitation (CPR) was done, followed by another shock sequence.

Findings

- All animals were resuscitated, regardless of energy used. However, more shocks were required with high-energy biphasic shocks than with low-energy biphasic shocks (6.4 ± 3.4 versus 2 ± 1 , $p < 0.05$).
- Left ventricular ejection fraction (representing the pumping strength of the heart) was higher with low-energy biphasic than with high-energy biphasic shocks, both at 1 hour and 4 hours post-shock ($p < 0.05$).

Conclusions

The authors conclude, “. . .low energy biphasic shocks increase the likelihood of successful defibrillation and minimize post-resuscitation myocardial dysfunction after prolonged cardiac arrest.”