

## P526

# Are 40 joules enough for successfully defibrillate with subcutaneous implantable cardioverter-defibrillator?

Biffi M.<sup>1</sup>; Bianchi V.<sup>2</sup>; Ziacchi M.<sup>1</sup>; Palmisano P.<sup>3</sup>; Pieragnoli P.<sup>4</sup>; Manzo M.<sup>5</sup>; Ottaviano L.<sup>6</sup>; Piro A.<sup>7</sup>; Nigro G.<sup>8</sup>; Bonfantino MV.<sup>9</sup>; Perego GB.<sup>10</sup>; Rapacciuolo A.<sup>11</sup>; Caroli E.<sup>12</sup>; Lovecchio M.<sup>12</sup>; Viani S.<sup>13</sup>

<sup>1</sup>University Hospital Sant'orsola Malpighi, Bologna, Italy

<sup>2</sup>AO dei Colli-Monaldi Hospital, Naples, Italy

<sup>3</sup>Cardinale G. Panico Hospital, Tricase, Italy

<sup>4</sup>Careggi University Hospital, Florence, Italy

<sup>5</sup>AOU S. Giovanni di Dio e Ruggi d'Aragona, Salerno, Italy

<sup>6</sup>Sant'Ambrogio Clinical Institute, Milan, Italy

<sup>7</sup>Umberto I Polyclinic of Rome, Rome, Italy

<sup>8</sup>Second University of Naples, Naples, Italy

<sup>9</sup>P.O. Di Venere Carbonara di Bari, Bari, Italy

<sup>10</sup>Ospedale St. Luca - Istituto Auxologico Italiano, Milan, Italy

<sup>11</sup>Federico II University of Naples, Naples, Italy

<sup>12</sup>Boston Scientific, Milan, Italy

<sup>13</sup>Azienda Ospedaliero Universitaria Pisana, Pisa, Italy

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**Background:** The subcutaneous ICD (S-ICD) is an effective alternative to the traditional transvenous option. Due to its extracardiac design the S-ICD requires a higher shock output than the traditional ICD. Nonetheless, preliminary data suggest that acute defibrillation test may be successful even at energies lower than the usually tested value of 65J, and that optimization of implantation technique may increase the defibrillation safety margin among S-ICD recipients.

**Purpose:** To evaluate the efficacy of conversion test performed at 40J, and to investigate the association between shock efficacy, clinical characteristics and device position.

**Methods:** VF was induced and subsequently, conversion test was performed by delivering a 40J shock. Success was defined as termination of VF by the first shock. S-ICD system positioning was evaluated with the PRAETORIAN score using bidirectional chest X-rays. Cranial-caudal S-ICD placement was defined as superior if the entire generator was contained in the cardiac silhouette, inferior if partially or completely outside.

**Results:** 233 consecutive patients (83% male, 49 ± 14 years, BMI 26 ± 4kg/m<sup>2</sup>, ejection fraction 46 ± 17%, 112 (48%) ischemic/non-ischemic dilated cardiomyopathy) were enrolled and underwent S-ICD implantation with conversion test at 40J. The generator was positioned in an intermuscular pocket in 228 patients (98%). The PRAETORIAN score was <90 (low risk of conversion failure) in 218 (94%) patients. Cranial-caudal generator placement was superior in 188 (81%) patients. Overall, VF termination occurred in 191 (82%) patients with 40J. The BMI was similar in patients with successful and unsuccessful termination (26 ± 4kg/m<sup>2</sup> versus 27 ± 6kg/m<sup>2</sup>, p = 0.195). The efficacy was comparable in patients with dilated cardiomyopathy (86%) versus other conditions (79%, p = 0.153). PRAETORIAN score was not associated with shock efficacy at 40J (82% with score <90 versus 87% with score ≥90, p = 1.000), while a trend toward higher efficacy was seen with superior generator placement (84% versus 73%, p = 0.093).

**Conclusions:** We observed high S-ICD defibrillation success rate at 40J, suggesting that the safety margin is frequently higher than the usually accepted 15J. We found no difference in efficacy according to the cardiac disease and no association between test failure and body habitus. The intermuscular positioning of the generator resulted in low values of the PRAETORIAN score that however did not appear associated with test efficacy.