

## A COMPARISON OF VARIOUS WOUND DRESSINGS COUPLED TO A NEGATIVE PRESSURE WOUND THERAPY (NPWT) SYSTEM TO STUDY EFFECTS ON WOUND HEALING PROGRESSION

Rev Paqlinawan<sup>1</sup>, Miodrag Colic<sup>2</sup>, Maryline Simon<sup>1</sup>

<sup>1</sup>Medela AG, Baar, Switzerland, <sup>2</sup>Institute for Medical Research, Military Medical Academy, Belgrade, Serbia

**Aim:** Evidence is accumulating showing the beneficial effects of negative pressure wound therapy (NPWT) in wound healing. However, none have investigated the optimal pressure level intensity together with various combinations of existing dressing technologies. Various commercially available dressings (Gauze type 1, Gauze type 2, Foam, Textile and Silver) were tested in combination with a NPWT system applied with a range of negative pressure levels. A number of wound healing parameters were subsequently assessed.

**Methodology:** Landras type pigs were allowed to acclimatize to the housing conditions prior to all procedures. The animals were anesthetized and scrubbed pre-operatively. Full thickness wounds (maximal 10 per animal) were excised on each pig. The wounds were filled with various dressing types, and coupled with NPWT for 10 days. Pressures -10kPa (-75mmHg), -20kPa (-150mmHg) and -30kPa (-225mmHg) were applied. We show standard wound measurements taken previously, granulation tissue area and other additional measurable wound healing effects of NPWT.

**Result & Conclusion:** The 10-day healing rates from the various wound dressings were comparable. The wounds responded well to each of the treatment applied and all new regenerated tissue appeared healthy with collagen and new vessel formation. The two NPWT dressing systems available on the market have been compared within the range of their clinically recommended pressure levels (-10kPa / -75mmHg for gauze and -20kPa / -150mmHg for foam). They exhibited clinically comparable 10-day healing rates. To conclude, there exist numerous clinically-effective alternatives, each having its own set of unique advantages (i.e. cost, ease-of-use, and pain management).