

# Highlights from the advanced wound healing stream at the LINK Congress

**Sarah Kahn**, Editor of the *British Journal of Nursing*, discusses some highlights of the recent Hartmann LINK for Wound Healing Congress, which was organised in collaboration with the *Journal of Wound Care*

The Hartmann LINK for Wound Healing Congress took place in Belfast, Northern Ireland, on 19 September 2017. Attended by almost 300 delegates from around the world, this event sought to promote the latest advances in wound care and management. Hartmann's acronym, LINK, stands for the values of Learning, Informing, Networking and Knowledge-building in the wound care community.

## Epithelialisation

Professor Marjana Tomic-Canic, Director of Wound Healing and Regenerative Medicine Research Program at the Department of Dermatology and Cutaneous Surgery, University of Miami Miller School of Medicine, currently president of the Wound Healing Society, gave a key presentation in the morning titled: How does epithelialisation work? Tomic-Canic has been a keratinocyte (skin cell) biologist throughout her career. Tomic-Canic highlighted that the delegates were all there because of a common priority: improving wound care, and that is something the wound care community can change. That is why conferences are so important, allowing the sharing and development of ideas across different areas of expertise.

## Why has progress been limited?

Tomic-Canic highlighted that chronic ulcers are a deadly disease with a high mortality rate, yet we do not have enough efficient ways to treat patients. So, why has there been limited progress in therapy development in the last 15 years? There have been great technological advances in tissue engineering and repair mechanisms. It is possible to grow viable tissue from a single stem cell, yet we cannot heal a wound quickly enough to avoid amputation in some cases.

It is necessary to have an understanding of the molecular pathology of the hostile wound environment. There is no magic bullet in wound healing as all patients, and all wounds, are different. Tomic-Canic explained that the

challenges include a lack of validated surrogate endpoints for clinical efficacy, and these are hugely important, as it allows full comparison of different treatments.

## What do we know so far?

We know that there are multiple cell types (keratinocytes, fibroblasts, epithelial cells etc) involved in the wound healing process, and a number of additional factors that form part of the process:

- There is intercellular communication in wounds between the multiple cell types, using growth factors and cytokines often perturbed in chronic wounds
- Cells do not function normally in chronic wounds
- The microbiome (full complement of microbial life in a given environment) interacts with the chronic wound environment.

**Tissue with capacity to heal exists within the non-healing wound and many ongoing interventional clinical trials show emphasis on cell-based, antimicrobial and pharmacologic therapies**

## The edge effect

When debriding non-healing tissue in and around the edge of the wound, it is important to work out where the border of the wound and viable tissue is, and remove the non-healing cells, keeping the viable cells. Tomic-Canic explained that keratinocytes play a major role in wound healing and went into detail explaining the pathology of the epithelial border, particularly if bulging and not migrating into the wound centre. In some instances, keratinocytes are altered and the microenvironment in the wound is still not optimal for wound healing. Tomic-Canic summarised that our knowledge remains limited regarding the mechanisms that control acute and chronic healing, but we are increasing our knowledge every day.

## Moving forward

Tissue with capacity to heal exists within the non-healing wound and many ongoing interventional clinical trials show emphasis on cell-based, antimicrobial and pharmacologic therapies. It is hoped that using new technologies for diagnostic purposes will pave the way for more patient-specific therapy approaches.

## Wound management is everyone's concern

Dr Emmanuelle Candas from the Department of Geriatrics, Sainte Péline Hospital, Paris highlighted that whether a doctor, nurse, surgeon or other health professional, wound management is everyone's concern. Therefore it is necessary for all health professionals to have the required skills to aid wound healing.

## Finding the solution

As with any problem, there is a solution. In 1963 Dr George Winter's seminal work demonstrated the benefits of the moist environment for wound healing (Winter, 1963). Hydrotherapy, with hydro-responsive wound dressings (HRWDs; HydroClean or HydroTac), offers a real solution to the problem of wounds. It is a means of calibrating the moisture supply, according to the requirements of the wound. During the stage of debridement, necrosis and fibrin must be removed. Thanks to its unique mode of action, the HRWD enables rapid debridement.

According to Candas, there are four reasons to chose HRWDs and she refers to these as the 4Rs:

- Rapidity of the debridement
- Reduction in the bacterial load
- Active Regulation of attached matrix metalloproteinases (MMPs) thereby rendered inactive
- Respect for the viability of the fibroblasts and myofibroblasts.

The wound should be closely monitored and the dressing replaced every 24 hours, enabling the progression of the debridement to be monitored.



Congress speakers Professor Marjana Tomic-Canic (top) and Dr Emmanuelle Candas

This 'self-cleaning' process allows rapid replacement of the dressing, which saves time for health professionals and also means that mechanical debridement can be avoided.

**Clinical case studies**

Candas works in a 600-bed geriatric hospital. She spoke of the benefits she and her patients had found from using HRWDs. The first time she used an HRWD, she was caring for a 74-year-old tetraplegic patient with a sizeable, malodorous sacral pressure ulcer. Ageing can slow down the healing process, and several dressings had been used previously without success. After 21 days of using the HRWD, the wound was completely debrided. In addition, the patient's quality of life improved, and the odour improved from the first day that the dressing was used. Candas also listed a number of case studies including both acute and chronic wounds that had been treated successfully using HRWDs.

Candas concluded that the benefit of healing in a moist environment has been proven and that going forwards, we need to be able to adjust the hydration of the wound and thereby adapt it to its phase of healing and its exudative character.

**Simplifying wound dressing selection**

Tabatha Rando from Wound Management Innovation Cooperative Research Centre in Australia presented on simplifying wound dressing selection for residential aged-care nurses. South Australia has the highest rates of over-65-year-olds per capita of any Australian city. The number one question asked by wound education participants is 'what do we put on the wound?' There are more than 3000 different wound dressings and devices available in Australia so it seems there is a need to simplify wound dressing selection. Rando attended the European Wound Management

Association (EWMA) conference in 2016, where many interesting papers were presented, however, one that really made an impression was by a health professional who spoke about the hydrotherapy concept that aimed to simplify wound management in practice.

This led on to 'The Simplicity Project' that took place between February and August 2017. The aim of the project was to demonstrate the effectiveness of a simplified dressing selection protocol for nurses in residential aged-care facilities. It was a prospective multi-site product evaluation project with four phases that received ethical approval.

The first phase involved looking at existing practice to provide a baseline measure cost analysis of use of existing products. Phase two was staff education on when and how to use the HRWDs, with help from Hartmann. Phase three was implementing the new dressings with all residents who met the inclusion criteria. It was used on all skin tears, and chronic wounds and pressure ulcers were assessed by a nurse practitioner. Phase four was data analysis and reporting. Of the 98 patients who took part in the study, 97 healed.

Feedback was sought from staff and residents. In total, 94% of staff found dressing application was either good or excellent, and 89% of staff noted the ease of removal of the dressing was either good or excellent. A total of 90% of staff either agreed or strongly agreed that the use of HRWDs had simplified their dressing selection process. Residents were also asked about their experience of the dressings and 94% noted their satisfaction with the trial dressing was either good or excellent. A reduction in pain was noted by both staff and the residents, identified as soon as the HRWDs commenced: 78% said they had no pain on dressing removal.

**Summary**

The LINK for Wound Healing Congress was a unique opportunity for professionals working in wound care from across the globe. The delegates, who travelled from as far as China and the USA to hear about the latest healing techniques, had a great opportunity to learn and plenty of chances to network with international colleagues. It is hoped that future LINK congresses will offer a similar quality of learning and entertainment. **BJN**

Winter GD. Effect of air exposure and occlusion on experimental human skin wounds. *Nature*. 1963; 200: 378-379