# EWMA 2024 CONFERENCE ABSTRACTS

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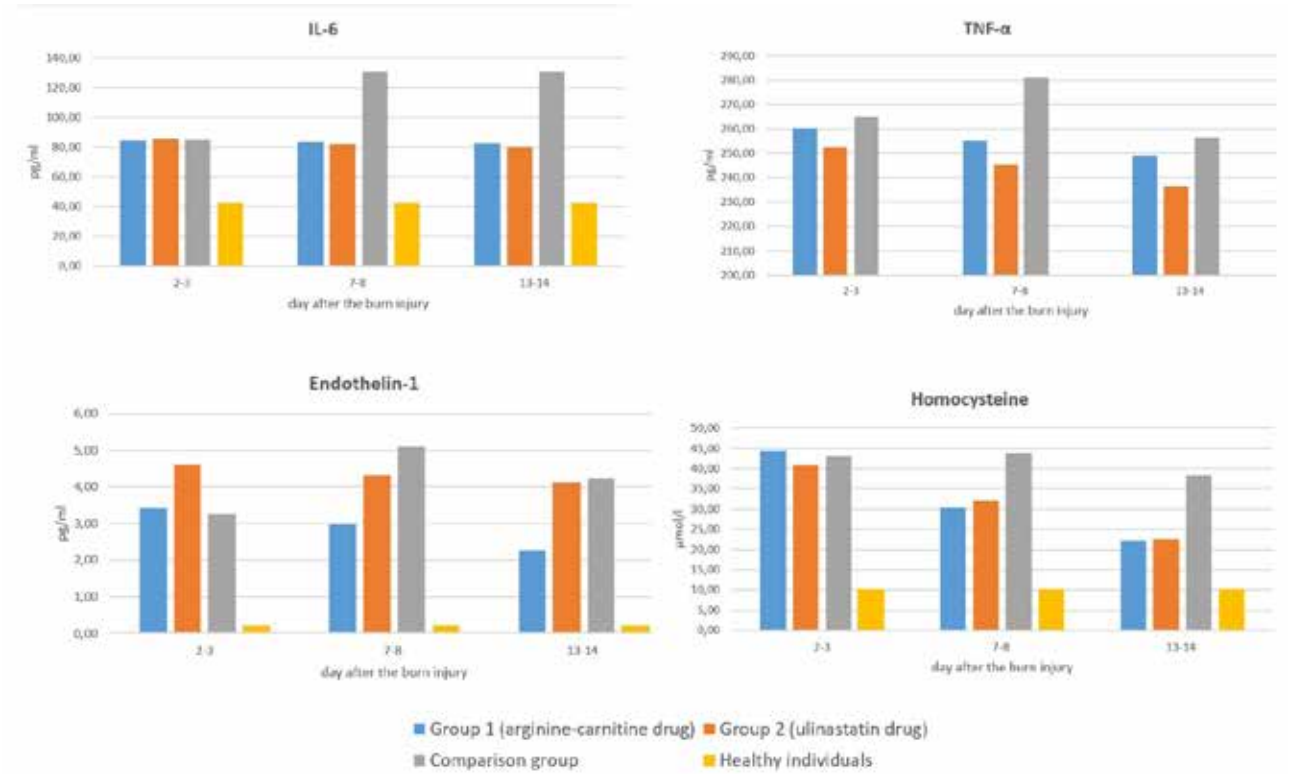


Pic. 1

**Conclusion:** Our research demonstrates that CACD and UD impact IL-6, TNF- , endothelin-1, and homocysteine levels in burn patients' blood. These findings suggest the potential effectiveness of both drugs in reducing immunological disorders, inflammation and endothelial dysfunction, potentially crucial in enhancing burn healing processes.

## EP386 Surgical treatment of large partial thickness burns

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**Introduction:** Restoration of the epithelium occurs from skin appendages in IIA degree burns, but part of them is involved in the paranecrotic zone.

**Aim:** To evaluate the effectiveness of a surgical program for the treatment of partial-thickness burns.

**Method:** 45 patients were under observation in the Kyiv burn center during 2021-2022, 28 patients with partial burns greater than 40% TBSA, and 17 patients with limited deep and widespread superficial skin burns.

**Results/Discussion:** Ultrathin excision of superficial necrotic tissue was performed in 15 patients of the main group 36.4±6.4 hours after injury, the wounds were covered with a xenograft. Partial excision was not accompanied by blood loss. Epithelization occurred within 19.5±3.5 days. Gradual exfoliation of necrotic tissues occurred using silver sulfadiazine or hydrocolloid coatings in 13 patients of the comparison group which was accompanied by endogenous intoxication and SIRS. Epithelization occurred 20.1±3.2 days.

In patients with superficial skin burns in combination with a limited deep area at the first stage in 36.4 ± 6.4 hours after injury, a very thin excision superficial necrotic tissue was performed. The wounds were covered with xenograft. In the

second stage (within 3 days after injury), radical excision of deep necrotic tissue was performed. A quick healing of superficial dermal burns was observed, decrease the level of endotoxicosis, and clinical manifestations of SIRS.

**Conclusion:** Partial excision of dermal necrosis improves the immediate and long-term results: duration is reduced, the skin recovery time is shortened, number of complications is reduced.

## EP387 Role of porous biodegradable scaffolds in modulating wound contracture: A finite element model

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**Aim:** Wound contracture may be mitigated by using scaffolds with physically tuned properties to improve wound healing outcomes. The proposed tissue-engineering approach requires a scaffold to match the mechanical properties of the target-tissue. However, this approach does not allow for progressive effects of cellularisation and ECM deposition to be considered. The aim of this work is to create a digital functional simulation of wound/scaffold interaction to explore potential scaffold design variables.

**Method:** Here we sought to develop a Finite Element Model of wound contracture. The simulation employs a neo-Hookean model to represent the material properties of the different layers of skin and the wound space. To compare wound contracture resulting from scaffold implantation in the wound space, a porous neo-Hookean material model was employed with a range 0.1 - 0.8 for solid fractions, to mimic cells filling a scaffold after implantation. A progressive force curve was used to simulate progressive cellularisation and contractile force. Natural skin tension (langer lines) was introduced into the model via prescribed uniaxial contraction.

**Results/Discussion:** Increasing the scaffold solid fraction mimics an increasing stiffness. Simulation results run over 40 cycles, show how as the solid fraction or stiffness of the scaffold is increased, it becomes more resistant to contracture forces, resulting in reduced stress, strain, and wound displacement.

**Conclusion:** Biomaterials scaffolds for wound healing with dynamic mechanical properties that vary in parallel with the wound healing phases could allow for the modulation of wound contracture. Porous biodegradable materials that allow for cell infiltration and adhesion have the potential to exhibit dynamic mechanical properties. Biomaterials formulation with these properties could help reduce scarring outcomes.

## EP388 Burns Pathway and Emergency Box Implementation in a mental health setting

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**Aim:** The authors are Tissue Viability Nurses based in a trust that provides a range of mental health, learning disability and neurological care services across the North of England to a population of over 1.4 million. They provide a service across community and acute settings with approximately 9000 staff. The aim of the pathway (Fig 1, image of pathway to be added) was to improve appropriate referrals and patient burn outcomes. This also includes appropriate referrals to the correct department as the team has close working relationships with different disciplines (Vascular, Burns, Podiatry and Plastics). The NHS pathway development (2019) supports pathway development as it reduces health inequalities.

The project aim was also to reduce restrictive practice which is at the forefront of the author's practice. This includes Unnecessary secure transport and other forms of restrictive practice which can be found in "What is Restrictive Practices NHS guidelines" like physical and environmental practice which can all cause distress.

**Method:** The Pathway development included different disciplines to make it inclusive. For instance, a criteria was developed with the burns department for direct referrals that should bypass Tissue Viability. Which can be seen in Table 1.