Surgical Site Infections in Dermatologic Surgery – Clinical, Diagnostic, and Pathogenic Aspects

Karim Saleh, MD, PhD
Faculty of Medicine, Lund University, Lund, Sweden. E-mail: karim.saleh@med.lu.se

Karim Saleh, defended his doctoral thesis on February 1, 2019 at the Faculty of Medicine, Lund University, Sweden. Opponent was Professor Eduardo Nagore, Instituto Valenciano de Oncologia, Spain, main supervisor was Professor Artur Schmidtchen and co-supervisor was Andreas Sonesson, Faculty of Medicine, Lund University, Sweden. This thesis is available at: https://portal.research.lu.se/portal/files/56861081/Karim_Saleh.Doctoral.thesis.no_studies_attached.pdf.

Surgical site infections (SSIs) in dermatologic surgery contribute to unwanted healthcare costs and are complications that cause suffering in patients. The aim of this thesis was to explore clinical, diagnostic, and pathogenic aspects of SSIs in dermatologic surgery.

In study I, we examined bacterial dynamics during normal wound healing and SSIs. We found that quantifying bacteria from wounds was a relevant factor for assessing healing outcomes. Higher bacterial loads in wounds resulted in complicated postoperative healing outcomes.

Fig. 1. From left to right: Associate professor Kari Nielsen (chair and member of the review committee), Dr. Andreas Sonesson (Co-supervisor), Professor Artur Schmidtchen (Main supervisor), Dr. Karim Saleh, Professor Eduardo Nagore (Opponent), Professor Tautgirdas Ruzgas (review committee), and associate Professor Adam Linder (review committee).

In study II, we designed a randomized controlled trial exploring the effects of a novel antiseptic, polyhexanide biguanide (PHMB) on bacterial loads. PHMB added to tie-over dressings in full-thickness skin grafting did not decrease bacterial loads and paradoxically increased the incidence of SSIs in the intervention group.

In study III, we examined whether wound fluids obtained from dermatosurgical wounds could predict the occurrence of an SSI. Our results showed that the investigated biomarkers could indeed serve as diagnostics for assessing wound healing.

In study IV, the aim of the study was to assess inter-observer agreement when assessing wound healing in dermatologic surgery. There was a broad inter-observer variability in the diagnosis of an SSI illustrating the need for objective diagnostic methods that capture an actual SSI.

Ultimately, we provided new insights into SSIs in dermatologic surgery that can be useful in discovering methods to prevent these types of infections in the future.

List of publications

1. Saleh K, Sonesson A, Persson B, Riesbeck K, Schmidtchen A. A descriptive study of full-thickness surgical wounds in dermatologic surgery. Dermatol Surg 2011; 37: 1014–1022.
2. Saleh K, Sonesson A, Persson K, Riesbeck K, Schmidtchen A. Can dressings soaked with polyhexanide reduce risk for surgical site infections in full-thickness skin grafting? A randomized controlled trial. J Am Acad Dermatol 2016; 75: 1221–1228.
3. Saleh K, Riesbeck K, Schmidtchen A. Inflammation biomarkers and correlation to wound healing after full-thickness skin grafting. 2018. Submitted.
4. Palmgren J, Paoli J, Schmidtchen A, Saleh K. Variability in the diagnosis of surgical site infections after full-thickness skin grafting: An international survey. Br J Dermatol 2018 Dec 10. E-pub ahead of print.