
Deadly chains

INVITERT KOMMENTAR

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Necrotising soft tissue infections are rare, acute and life-threatening. Treatment is resource-intensive, but the evidence base is limited. Local data can be key to identifying areas for improvement, possibly leading to better patient outcomes.

Necrotising soft tissue infections are bacterial infections that can spread quickly, affecting the skin, subcutaneous tissue, connective tissue and muscle. The majority of cases occur in the extremities, approximately one in six cases involve the head and neck region, often originating from the oral cavity or pharynx, and approximately half of all patients develop septic shock [\(1\)](#). In Norway, around 200 people are affected annually, necessitating a wide range of resources and complex treatment chains across multiple specialties [\(2\)](#).

Surgery is the primary treatment and must be initiated promptly, as any delay significantly compromises prognosis [\(3\)](#). Evidence for other treatment modalities is limited, and certain interventions remain disputed [\(4\)](#). Patients are often diagnosed late [\(5\)](#), leading to delays in treatment.

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In this edition of the Journal of the Norwegian Medical Association, Tanovic et al. from the Department of Otorhinolaryngology at Oslo University Hospital, Rikshospitalet, present the results of a quality assurance project on necrotising soft tissue infections [\(6\)](#). They examined incidence and microbial aetiology over a seven-year period spanning before, during and after the COVID-19 pandemic, as well as adherence to

national guidelines for antibiotic use. Tanovic et al. observed a lower patient count during the pandemic than before, with *Streptococcus pyogenes* (group A streptococci, GAS) responsible for over half of cases, and identified GAS as the predominant aetiology after the pandemic.

This reflects the rapid but transient rise in group A streptococcal infections reported in multiple countries, including Norway, in the period 2022–24 (7). The increase appears to result from a combination of individual, societal and microbial factors, including reduced post-pandemic herd immunity to group A streptococcal infections, due to social isolation, and fewer respiratory infections during the pandemic. From a microbial perspective, the rise in group A streptococcal infections was linked to a virulent clone with an enhanced ability to colonise the upper respiratory tract and trigger mucosal inflammation, potentially facilitating transmission and spread (8).

Despite the substantial resources required for each case of necrotizing soft tissue infection, approximately 20 % of patients die. Fifteen per cent require amputation of extremities, with major long-term consequences. Measures are needed to improve these outcomes. To date, two randomised treatment studies have been conducted, and this autumn marks the start of the first international multicentre trial investigating the effect of hyperbaric oxygen therapy.

Other proposed studies focus on the impact of immunomodulatory treatments, surgical techniques, or antibiotic choice (4,9). Because the condition is rare, hyperacute and involves many specialities, conducting such studies is methodologically and ethically challenging. It will therefore take time to strengthen the evidence base and improve clinical practice.

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In this context, more straightforward quality projects can be useful for achieving local improvements, for example, drawing inspiration from the national sepsis audits in emergency departments conducted between 2016 and 2018. These audits enabled hospitals to review their own practices and revise structures, organisation and clinical routines, resulting in documented improved outcomes.

For necrotising soft tissue infections, the time from onset of infection to surgery is the most critical determinant of outcome. Improvements targeting this time interval can therefore be particularly valuable. Rikshospitalet's study does not provide such an analysis (6), but it can nonetheless serve as a model for others to follow. Local data can help identify areas suitable for evaluable quality improvement work. Such efforts are probably most worthwhile when aimed at improving access and shortening the interval to surgery and revision. The prerequisites for achieving these goals have not been fully met yet. Clear definitions of the conditions are needed to generate data that allow assessment of treatment access and evaluation of interventions and outcomes. This, in turn, will strengthen the prospects for developing national, multidisciplinary treatment guidelines. Achieving this will require specialists to be supported by leaders capable of driving cross-disciplinary collaboration, including in information technology.

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Observable changes in the most severe group A streptococcal infections have attracted considerable attention from both the medical community and the public, which has helped generate interest in the broader group of life-threatening soft tissue infections. Perhaps applying strategies from the patient safety programme for sepsis can help improve organisation, accessibility, clinical routines and treatment outcomes for these infections as well?

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