Hexagen Topical Antimicrobial Gel as an Ancillary Treatment for Necrotizing Fasciitis: A Case Report

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Introduction

Necrotizing fasciitis (NF) is a rare, complex disease with a mortality rate between 25-35%. Typically the infecting agent invades the soft tissues, aggressively attacking deep soft tissue layers with resultant liquefaction within hours of the initial exposure. Early diagnosis is key in lowering mortality rates. However, disease rarity, along with the inverse relationship of physical exam to symptom severity may contribute to a delay in diagnosis and treatment. The gold standard treatment includes emergent fasciectomy, serial débridements, broad spectrum antibiotics, local wound care, and eventual skin grafting.

In this case study, a 49-year-old male presented with acute NF of the left lower extremity. A novel antimicrobial formula, Hexagen gel, was employed in the treatment protocol.

Laboratory Risk Indicator for Necrotizing Fasciitis (**LRINEC)**

VARIABLE	UNITS	SCORE
C-reactive protein	≥150 mg/L	4 points
White blood cell count (per mm^3)	15-25 >25	1 point 2 points
Hemoglobin	11.0-13.5g/dl < 11 g/dl	1 point 2 points
Serum sodium	≥135 mmol/l <135 mmol/l	1 point 2 points
Serum creatinine	>1.6 mg/dl (or >141 µmol/l)	2 points
Serum glucose	>180 mg/dl (or > 10 mmol/L)	1 point

*A LRINEC score of ≥ 8 correlates with a 93.4% likelihood of NF infection.

Case Report

12/9/16 (7:29pm)
- 49-year-old Hispanic male with complaints of shortness of breath and left leg pain.
- Patient was hypotensive, tachycardic, hyponatremic, and hyperglycemic; a small wound was present on his anterior left leg due to a splinter two days prior.
- White blood cell count (WBC) was 23x10^3 cells/mL, serum creatinine was elevated, and hemoglobin decreased, giving a LRINEC score of 8.
- Diagnosis: Septic shock secondary to NF of the left lower extremity.
- Treatment: To OR for emergent débridement and fasciectomy.

12/9/16 (11:00pm)
- Intra-op: Erythema, edema, and liquefaction of LLE.
- Extensive incisions from the mid thigh medially and laterally down to the ankle. Significant purulence in the subcutaneous tissues and surrounding fascia.
- Post-op: WBC rose to 25X10^3 cells/mL. Wound cultures positive for beta-hemolytic group A strep. Broad spectrum IV antibiotics begun.

12/12/17
- Follow-up débridement and salvage procedure with Versajet. Negative-pressure therapy applied to avoid fluid collection. Post-op IV antibiotics continued.
- WBC: 30x10^3 cells/mL. Concern about viability of limb.

12/16/17
- Further débridement. Wound dressed with Hexagen antimicrobial gel, Adaptic, and Kerlix.
- Post-surgical WBC reduced to 22x10^3 cells/mL.
- Post-op IV antibiotics continued. Daily dressing changes with Hexagen, Adaptic, and Kerlix.
- Wound improved; WBC decreasing.

12/28/17
- More intra-op débridement performed with application of split-thickness skin grafts harvested from right thigh. Hexagen, Adaptic, and negative-pressure therapy applied to the grafted wound base.
- IV antibiotics continued. Post-surgical WBC reduced to normal (10x10^3 cells/mL).

1/2/17
- Patient discharged from hospital with daily dressing changes of Hexagen, Adaptic, Kerlix, and light ACE wraps.

2/16/17
- 6-week post-op evaluation: Patient returned to work as a construction worker at a normal activity level.
- Patient continues to apply Hexagen and Kerlix daily; happy with his post-op course.

Results

Results cont.

Discussion

Necrotizing fasciitis (NF) is a limb and life-threatening soft-tissue infection with acute onset and rapid progression. The rapidly progressive nature of NF requires prompt and aggressive surgical débridement, tissue reconstruction or amputation may be required. The elevated WBC on admission decreased rapidly following the application of Hexagen antimicrobial gel. Hexagen antimicrobial gel may serve as a useful tool for ancillary antimicrobial therapy in NF infections.

Conclusion

Further study is needed to justify use of Hexagen antimicrobial therapy for NF. Our case report suggests that its use as ancillary therapy yields better outcomes than traditional treatment methods alone.

References

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