Let it go

A CLINICAL REVIEW OF FROSTBITE

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INTRODUCTION

Frostbite management can be both arduous and unsettling, and may feel emergent. For best management, take heart from the famous ice queen, and “let it go” while awaiting its full splendor. At a musculoskeletal level, frostbite occurs from rapid freezing of cells, and subsequent thawing and inflammation from reperfusion, leading to cell death and necrosis. Without proper management, these thermal injuries can quickly devolve.

METHODS

84-year-old patient fell at home during winter. Patient was without heat and unable to move for approximately 42 hours, resulting in grades 4 and 2 frostbite per the Cauchy criteria.

While waiting for the full extent of necrosis to be revealed, collaboration with cardiology and surgical services was enacted. Following necrotic development, transmetatarsal amputation of the left foot was completed after confirmation of vessel patency. Distal phalanx removal was then performed on the right great and second toes. Dressings included povidone iodine initially to prevent wet gangrene, followed by collagen, cadexomer iodine, gentian violet and methylene blue dressings, and silver nitrate.

RESULTS

Proper collaboration between cardiology, surgical, and wound care services was paramount in the initial management of this patients frostbite management. Through careful treatment, the patient was successfully moved into an assisted living facility where they healed completely.

DISCUSSION

Abstaining from immediate action while dealing with frostbite mahy be difficult. Necrosis related to frostbite will reveal itself within days to weeks. In the interem, it is important to manage patient pain, and wound while in careful collaboration with teams such as cardiology and surgery.

The Cauchy criteria is used to assess the level of frostbite present.
Grade 1- no extremity cyanosis, which predicts no amputation or sequale.
Grade 2- cyanosis to the distal phalanx, which predicts possible soft tissue amputation and nail sequale
Grade 3- intermediate and proximal phalangeal cyanosis, which predicts amputation as well as functional sequelae
Grade 4- cyanosis over carpal or tarsal boneswhich predicts amputation of limb as well as functional sequale.

Imaging such as X-ray and CT scans can assist in determining true severity-depth and extent- of necrosis, while doppler and angiography will assist with vessel patency.

True plasminogen activator may be used for perfusion improvement and subsequently decrease amputation risks.

REFERENCES

Zafren, K. (2025). Frostbite: Acute Care and prevention. UpToDate. Frostbite: Acute care and prevention - UpToDate

1/30/2024

POST AMPUTATION 2/26/2024

3/5/2024

3/19/2024

4/16/2024

4/30/2024

1/30/2024

3/5/2024

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