

EFFECTIVENESS OF COLD ATMOSPHERIC PLASMA TO MANAGEMENT PYODERMA GANGRENOSUM IN ILEAL CONDUIT

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Introduction

Peristomal pyoderma gangrenosum presents challenges to successful pouching. The size of the ulceration and its proximity to the stoma affects the seal of the appliance to the skin. The goal of management is to promote healing while maintaining adequate wear time of the pouch.

Cold atmospheric plasma (CAP) is temperature controlled utilizing ionized gas particles in the air to generate CAP for treatment. The positive effect of cold atmospheric plasma on human cells is due to the stimulation of intracellular processes initiating cell growth through reactive species and interact with the cell membrane of the bacteria. The most common side effects are swelling, tenderness, and redness.

Case presentation

Case thai female, 91 years old diagnosed CA cervix post radiation therapy, underlying HT, Vit. D deficiency, rhinitis, S/P flexible cystoscopy with bilateral single coiled stent (from radiation cystitis) 3/6/64, S/P ileal conduit with ileoileostomy anastomosis (from bilateral ureteral stricture) 12/8/63, after surgery there was chronic ulcerative lesion all around peristomal skin of ileal conduit that hard to taking care of stoma doctor decided to revise ileal conduit 12/11/66 after discharge pouching with 1 - piece convex transparent but pouch leakage every 1-2 days and have pyoderma gangrenosum

Stoma assessment

Ileal conduit at RLQ of abdomen size 5x10 mm, stoma red and moist, opening of lumen is apex, stoma retraction, mucocutaneous suture line intact, peristomal skin have ulcerative at 4-12 o'clock (L3-TIII-TI) and pyoderma gangrenosum at 7 o'clock, effluent yellow liquid (urine), pain at lesion



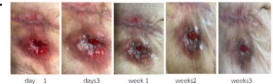
Management

- Remove old pouch with remover wipe
- Cleansing with tap water
- Use CAP on peristomal pyoderma gangrenosum mode wound healing 15 min usually 1-2 time/wk
- Manage peristomal pyoderma gangrenosum and protecting peristomal skin with no string barrier spray
- Contour with hydrocolloid paste no alcohol on peristomal skin
- Cover with 2piece pouch urostomy 50 mm.



Result

In 3 weeks after the 1st evaluation and use CAP, the pyoderma gangrenosum and ulcerative lesion healing.



Discussion

Pyoderma gangrenosum can usually be treated with stoma powder or antimicrobial powder covered by a piece of hydrocolloid. A foam dressing over the ulceration is helpful if the ulcer is particularly moist. Silver dressings in sheet form or calcium alginates have also been effective. Although in this case management all above don't heal. Cold atmospheric plasma is a new technology to heal wounds, decrease inflammation, increase oxygen in tissue, and decrease pain.

Reference

1. Bonnie Alvey and David E. Beck. (n.d.). Peristomal dermatology. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2780183>.
2. Julia Zimmermann and Gregor Morfill. (2016). wound treatment with I V plasma inactivation of bacteria and fungi activation of wound healing. <http://www. terraplasma-medical.com>.