Two Novel Treatments for the Prevention and Treatment of Radiation Induced Moist Desquamation

Introduction

- A skin care working party was set up to produce evidence based practice skin care guidelines, including recommendations for the treatment and prevention of moist desquamation. A audit of 259 patients in 2008 revealed that 7% of patients developed moist desquamation.
- A literature search by members of the skin care working party found several studies looking at the prevention of skin reactions.
- Numerous studies have previously looked at the treatment of moist desquamation. No one treatment intervention has been proven superior to any other.
- However our existing clinical practice needed updating to follow best practice moist wound healing principles.

Methods and Materials

- 40 patients were identified at high risk of developing friction related moist desquamation (RTDG score 2a and above) using the results gained from the previous audit (see table 1).
- These 40 patients were given CNSBF to apply during their treatment site is in the anal-genital area e.g. vulva, vagina, penis, groin, etc. from 1 to 2b and 2 from 2a to 3.
- The Radiographers observed a marked improvement in the skin reactions. Its appealing properties included odour reduction, non adherence, absorbency, wound cleaning as well as healing and pain relief.

Results - CNSBF

- Of the 40 patients identified as being at high risk, 17 (42.5%) patients developed stage 2b or greater skin reactions, 3 of these later developed stage 3 and none of the patients in the study developed stage 4 (Graph 1).
- Stage 2b was not observed in any of the cases until week 3. Table 2 shows a summary of the weekly skin reactions observed in 2b over observed in different patient groups including risk factors associated with these patients. 8 of these patients went from 0 to 2b in the space of a week, 3 from 1 to 2b and 2 from 2a to 3.
- The Radiographers observed a marked improvement in the skin reactions generally and in particular for patients treated for anal carcinoma that used CNSBF. The field was limited to be limited to the perineal region. In two anal carcinoma patients their groin and perineal area were mixed in the application process, stage 2b was reached at week 3 in these areas, compared to week 5 for the patients.
- Some skin reactions did not follow the usual gradual progression through stage 1, 2a, 2b and instead went straight to 2b or 3. The patients were usually sensitive to CNSBF - a mild erythematous rash develop in the application area early on in the study therefore all patients were tested for sensitivity prior to its application. Outside the treatment area 24 hours before CNSBF was applied, a further 2 patients subsequently showed sensitivity reactions and were excluded from the study.

Discussion

- From the results of the study there appears to be a delay in the presentation of acute skin reactions. This is highlighted in two anal carcinoma patients where stage 2b was reached in areas missed by the CNSBF application 2 weeks before the areas that had CNSBF applied.
- 52.5% of high risk patients did not reach the expected 2b skin reaction negating the need for further interventions, overall this may reduce the cost in treating these patients skin reactions long term as well as improving overall cosmetic results and the patients experience of treatment.

Graph 1: RTDG skin reaction scores in 40 high risk patients using CNSBF

References


Table 1: Patient groups identified as being at high risk of developing RTDG 2b skin reactions

<table>
<thead>
<tr>
<th>Treatment Site</th>
<th>No. of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anus</td>
<td>5</td>
</tr>
<tr>
<td>Groin</td>
<td>4</td>
</tr>
<tr>
<td>Groin/scrotum</td>
<td>4</td>
</tr>
<tr>
<td>Vulva</td>
<td>1</td>
</tr>
<tr>
<td>Penis</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 2: RTDG weekly score

<table>
<thead>
<tr>
<th>Week</th>
<th>RTDG Score</th>
<th>Diagnosis</th>
<th>Risk factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>2b</td>
<td>3</td>
<td>Breast</td>
<td>Concussion, chemo, parallel, parallel, parallel, breast, chemo</td>
</tr>
<tr>
<td>2a</td>
<td>2</td>
<td>Anus</td>
<td>Concussion, chemo, parallel, parallel, parallel, breast, chemo</td>
</tr>
<tr>
<td>1x</td>
<td>1</td>
<td>Rectum</td>
<td>As Above (same pt)</td>
</tr>
<tr>
<td>1x</td>
<td>1</td>
<td>Value</td>
<td>As Above (same pt)</td>
</tr>
</tbody>
</table>

Table 3: RTDG score and number of patients treated with PolyMem dressing (NB of patients used the dressing in multiple sites)

<table>
<thead>
<tr>
<th>RTDG Score</th>
<th>No. of Patients</th>
<th>Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>Anus</td>
</tr>
<tr>
<td>2a</td>
<td>6</td>
<td>Groin</td>
</tr>
<tr>
<td>2b</td>
<td>13</td>
<td>Rectum</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Anus, Groin</td>
</tr>
</tbody>
</table>

PolyMem

- Of the 17 patients reaching stage 2b in the CNSBF audit, 11 were given PolyMem to use (one patient was non compliant and a second patient had been discharged from treatment). It did not use it. The remaining patients were given gentian violet to apply by the clinician before PolyMem was used.
- A total of 20 patients were given the dressing. Table 3 shows at which RTDG score PolyMem dressing was instigated and to which sites.
- PolyMem was generally used after the patient had received a minimum of 20 Gy.
- PolyMem was found to have reduced pain scores between 1 and 4 points in 14 of the 19 patients studied. Wilcoxon Signed Ranks Test showed that this is a significant reduction (p=0.001).

Discussion

- There is a significant pain reduction for many patients. This is due to an inhibition by the polymeric membrane of the dressing on the receptor sites.
- A total of 20 patients were given the dressing. Table 3 shows at which RTDG score PolyMem dressing was instigated and to which sites.
- PolyMem also acted as an anti-inflammatory when it was instigated at stage 2a, particularly in the anal-genital region.
- Feedback from patients was positive, from ease of use to pain and odour relieving properties. No patients showed signs of sensitivity.
- Some areas still require careful treatment and ensuring the dressing is secure e.g. scrotal, vulval regions. This was effectively managed by encouraging patients to use sanitary support and nettoilet pants.

Cost implications

- (as per October 2009 NHS supplies catalogue prices)
- 1 bottle of spray (£8.26) lasted for 4 weeks of application (18 patients). 22 patients required another bottle.
- Of these 40 patients, 11 received PolyMem dressings. Two sizes were ordered (100x10cm roll (£2.21 per roll) and 1x1m dressings (£4.21 per dressing), both dressings were cut to size as required and changed daily. Total cost per patient was dependent on when the dressing was used the amount of dressing that was needed. The dressing was freely available in the community. It was found to be comfortable to prescribe the dressing for the patients once its effectiveness was established with only 1 dressing needing to be issued by the department.

Conclusion

- Due to the effectiveness of the CNSBF it is now routinely applied by Radiographers to pre-identified high risk patients, however all patients are tested for sensitivity prior to its application.
- CNSBF is also used to preserve skin marks required for superficial x-ray and electron treatments.
- PolyMem is now issued by Radiographers to all patients presenting with 2b skin reactions.
- In patients being treated for lower rectal / anal cancers the authors would recommend the instigation of PolyMem at 2a skin reactions, particularly when the patient has a heavy mucosal discharge and therefore the skin is likely to macerate and breakdown.
- Future studies are warranted in the use of CNSBF where patients are assessed as their own control to fully establish CNSBF and PolyMem effectiveness in the prevention of acute radiotherapy induced moist desquamation.