In our practice setting, diabetic foot ulcers (DFUs) were not closing to our satisfaction. We determined that improved off-loading could improve outcomes. A thorough literature review was performed. Literature showed the Total Contact Cast (TCC) or the "gold stan- dard of care," but had many contraindications and was not practiced. Consequently, it was also reported that a TCC modification, called the instant Total Contact Cast (iTCC), which could be used in most settings, eliminated the TCC contraindications, but still had limitations. A key limitation identified in the iTCC was periwound maceration. The goal was to maximize DFU healing and benefit the patient by the development of a practical off-loading approach that eliminated all contraindications and problems.

Methods

Phase 1: We implemented the iTCC approach as reported in clinical literature. The iTCC was found to provide improved results, but our ex- perience confirmed the maceration problem as reported in the literature.

Phase 2: We evaluated alternative dressings in- cluding collodion, hydrofibers, and polymeric membrane dressings (PMD) for the purpose of reducing periwound maceration without in- creasing dressing change frequency. Macera- tion occurred with all dressings except PMDs.

Phase 3: We developed a best practice proto- col for the team to test using the iTCC with PMD.

Phase 4: We validated the protocol in complex cases, with the iTCC and PMD 2-3 times a week, depending on wound status, size, and location. All digi- tal photographs were taken and analyzed using digital planimetry software to obtain measure- ment accuracy.

Costs

The total cost of the iTCC/PMD dressing will depend on the size of the wound, how often the dressing is changed, the type of PMD used, and whether the dressing is classified as durable medical equip- ment and is typically charged to the patient's insurance provider and/or patient. There is a significant difference in cost when comparing the iTCC/PMD to the TCC/PMD. The cost of one application of TCC materials alone can range from $50-$117, while the iTCC/PMD is con- siderably less. Including the off-loading device, case 4 had a total healing cost of $147.80. This cost is less than the cost of one application of the iTCC/PMD. In case study #7 it was only $53.88. Case study #5 had an atypically large DFU and the total cost to close the wound was still very low at $208.12, which is potentially less than the cost of 2 TCC ap- plications.

The iTCC is easy to apply and can be used in less than 15 minutes. It does not require additional personnel and is a cost- saved treatment, that the iTCC requires. Ul- teroom PMD also contributes to the cost efficien- cy of this protocol. PMD contains unique com- ponents that work together to fill, absorb, cleanse, and maintain optimal moisture levels, while helping to reduce swelling and wound pain. PMD materials provide additional anti- microbial benefits of small particle silver to reduce the wounds from microbial con- tamination. The dressings contain absorbent materials that draw and lock the exudate into the dressing. This prevents pooling and lead- ing out of the dressing, which minimizes macera- tion and promotes optimal skin breakdown. The components in PMD draw the natural heal- ing substanfion in the body to the wound bed to promote healing while facilitating anti- infection and debridement. PMD contains a non-toxic, nonirritating, non-adhesive, the use of additional cleansers/saline is unnecessary. The combination of the iTCC and PMD materials works well with other design features in the dressing, usually result- ed in a decreased cost of $240 per wound. Com- bining PMD and the TCC reduces costs and improves healing outcomes.

Conclusions

The success of this case study validated our approach and supported our practice. The iTCC/PMD can be applied to any wound pro- tect the wound from microbial con- tamination. The worldwide search and does not have the contraindications of the TCC. Now, if this approach is used in the clinical setting, experienced maceration, subsequent ulcer- ations, or any complications from the applica- tion of the iTCC/PMD. This approach can be applied in most settings and all doses of our cases were applied in the comfort of the patient's home. Prior to the approach, the 5 case wounds were studied with similar techniques but all of them had an atypically large DFU and the total cost to close the wound was still very low at $208.12, which is potentially less than the cost of 2 TCC ap- plications. This approach of using PMD has been shown in the literature to improve outcomes. A thorough literature re- view was performed. Literature showed the total cost to close the wound for most cases was less than the cost of one application of PMD.

The total cost to close the wound for this series was less than the cost of one application of PMD. This outcome is in agreement with the literature that demonstrated that the iTCC/PMD dressing protocol reduced costs.

In our experience, the iTCC/PMD dressing protocol reduced costs when compared to the TCC/PMD. This is agreed with the literature that demonstrated that the iTCC/PMD dressing protocol reduced costs.

Case 1: 37-year-old male with IDDM, hyperlipidemia, peripheral neuropathy, and a DFU pressure ulcer for 11 months to the right lateral foot with tendon exposure. The TCC/PMD protocol was used for 6 months. The wound was closed in 83 days. The wound was fully healed after 10 days of using the iTCC/PMD protocol.

Case 2: 50-year-old male with IDDM, HTN, hyperlipidemia, charcot arthropathy, morbid obesity, peripheral neuropathy, prior left toe amputation and a right plantar DFU present for 13 months. The TCC/PMD protocol was used for 10 months. The wound was closed in 83 days. The wound was fully healed after 10 days of using the iTCC/PMD protocol.

Case 3: 49-year-old male with IDDM, HTN, hyperlipidemia, charcot arthropathy, morbid obesity, peripheral neuropathy, prior left toe amputation and a right plantar DFU present for 13 months. The TCC/PMD protocol was used for 10 months. The wound was closed in 83 days. The wound was fully healed after 10 days of using the iTCC/PMD protocol.

iTCC and Polymeric Membrane Dressing Protocol: How to Apply iTCC/PMD

Home health nurses were taught the use of the iTCC and PMD. This is agreed with the literature that demonstrated that the iTCC/PMD dressing protocol reduced costs.

Step 1: Place the appropriate PMD and secure with surgical tape.

Step 2: Place the lower acrness with an absorbent pad and secure with a surgical tape.

Step 3: Place the lateral pad over the wound and secure with tape. Also, insulate the non-infected areas with a non-adhesive, non-irritating, thin, flexible dressing to prevent additional open wounds.

Step 4: Place the inside pad over the non-infected cast walker (RCW) in case and secure with tape to off-loading device and secure in inches.

Step 5: Apply a cohesive wrap over the non-infected cast walker or off-loading device with a spatial technique to render the device non-reusable.

Mecatentive infratentorial cancer patients were taught the use of the iTCC and PMD. This is agreed with the literature that demonstrated that the iTCC/PMD dressing protocol reduced costs.

Case 1: 37-year-old male with IDDM, hyperlipidemia, peripheral neuropathy, and a DFU pressure ulcer for 11 months to the right lateral foot with tendon exposure. The TCC/PMD protocol was used for 6 months. The wound was closed in 83 days. The wound was fully healed after 10 days of using the iTCC/PMD protocol.

Case 2: 50-year-old male with IDDM, HTN, hyperlipidemia, charcot arthropathy, morbid obesity, peripheral neuropathy, prior left toe amputation and a right plantar DFU present for 13 months. The TCC/PMD protocol was used for 10 months. The wound was closed in 83 days. The wound was fully healed after 10 days of using the iTCC/PMD protocol.

Case 3: 49-year-old male with IDDM, HTN, hyperlipidemia, charcot arthropathy, morbid obesity, peripheral neuropathy, prior left toe amputation and a right plantar DFU present for 13 months. The TCC/PMD protocol was used for 10 months. The wound was closed in 83 days. The wound was fully healed after 10 days of using the iTCC/PMD protocol.

Bibliography


PolyMem® wound dressings, PolyMem® Wic cavity filler, PolyMem® Wic Silver Rope® cavity fillers are made by Ferris Mfg. Corp., 5133 Northeast Parkway, Fort Worth, TX 76106 USA, 1-800.POLYMEM (765.9636) • www.polymem.com

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The case study was unreported. Ferris Mfg. Corp. contributed to this poster presentation.