Introduction

Postoperative management of lower-limb amputation is critical to a patient’s long-term outcome. The purpose of dressings is to help meet the goals of postoperative management: healing, providing protection from outside trauma, managing pain, initiating early weight bearing, controlling edema while promoting the residual limb, preventing flexion contractures, regaining preoperative functional level, minimizing depression, and executing the proper care of the contralateral limb. However, there is a lack of consensus regarding the best choice of postoperative dressing. The options include soft dressings, immediate postoperative prostheses (IPOPs), RRDs, ZCasts, and air splints. Choosing the appropriate dressing for a patient can be a challenge for surgeons because there is no definitive or standard dressing.

The published literature in this area seems to be inconclusive, which complicates the dressing choice. Much of the research compares soft dressings to other postoperative options, and it has shown that RRDs, IPOPs, ZCasts, and air splints are better options when compared to soft dressings, such as postoperative socks or elastic compression bandages. The percentage of each postoperative technique used for transtibial amputations in the U.S. Department of Veteran Affairs (VA) hospital, the personnel who applied the dressing, and the frequency of a dressing choice from different medical disciplines. Results showed that use of a wide range of dressings is due to different surgical strategies, but “other factors may be present that influence postoperative dressing selection such as practice conventions, training, availability of skilled staff to apply rigid dressings, or other healthcare factors.”

The majority of research revealed an inconsistency in protocol ranging from the definition of “healed” to the distinction between a success or failure. There is also a lack of documented patient comorbidities, preoperative functional level, and the surgeon’s level of experience—all factors that have been shown to affect patient outcomes. An example of this inconsistency reported by Smith et al. in their literature review was a mortality rate ranging from 0–20 percent among the different case studies. Without definitive, standardized criteria, the surgeon’s decision is based solely on his or her experience. With the current data, it is impractical to compare different postoperative dressings accurately.

This literature review will synthesize the information on IPOPs, RRDs, ZCasts, and air splints found within published studies and provide unbiased information about these types of dressings.

IPOP

An IPOP is a prosthesis that is applied immediately in the operating room after the patient’s amputation. This type of preparation is only used on patients with a transtibial amputation who were active before the amputation. It consists of padding and compression socks surrounding the limb and is protected by a rigid fiberglass or plaster wrap. Within the wrap, an attachment plate is secured to connect a prosthesis and a socket.

Several studies indicate an IPOP could provide both physical and psychological benefits to the patient. Burgess et al. performed an IPOP study to observe the effects of the postoperative dressing on 16 subjects. The subjects reported psychological benefits, and the researchers found that wound healing was not delayed, edema was reduced, and the amount and duration of pain decreased. The study authors also found constant pressure and alignment were necessary for success. Condon and Jordan reported the postive effects of IPOPs in a study with 177 subjects, including one subject with bilateral amputations, where the patients stood on the first postoperative day and days following as pain tolerated. The researchers found IPOPs resulted in a decreased amount of pain directly proportional to the reduction of narcotics. Condon and Jordan also found that healing, “judged by epithelial bridging of the wound between sutures,” occurred without complications in 23 of the 38 amputations.

The patients were encouraged to talk about their anxieties to give the researchers a better understanding of what they were feeling. Typically patients will fall into a depression, which is accompanied by anger, a sense of helplessness and uselessness, fear of social nonacceptance, and premonition of death. Condon and Jordan reported in their study that the mood of the subjects was atypical in that they were less angry initially and were angry for a shorter duration as compared to their conventionally managed counterparts. A higher percentage of patients using IPOPs as a postoperative dressing ambulated in a definitive prosthesis than those who were treated with the conventional post-amputation method.

The results of other high-quality studies suggest that the success with a prosthesis could be due to positive psychological effects and a safe healing environment. IPOP patients also benefit from the reduction of edema as well as having a good environment in which the residuum can heal.

By Deborah Kinor, Erica Gaussa, and Erin Sutton, BME

www.professionals.ottohockus.com

Need more suspension?