in the residual limb—compression kept the blood circulating, preventing swelling of the limb. None of the patients had infection at the wound site, and no knee contractures were reported since the splint kept the knee in extension. The splint was taken off after four hours to allow the knee to move. The researchers also discovered that there was not a sudden. The air splint was also uncomfortable against pricking the splint, although the leakage described did not occur if the rehabilitation team to don and doff, the decreased risk of knee-flexion contracture, and the ability to release air out of the splint for greater patient comfort.22,24 The air splint has also been proven to work for both transfemoral and transtibial amputations.22 Bonner and Green have successfully used a type of air splint on more than 200 patients who had undergone a transtibial amputation.26

One criticism of the air splint is the concern about air leakage. According to the Palms and Desai study, air leakage could occur if the rehabilitation team or the patient did not exercise caution against pricking the splint, although the leakage was not sudden. The air splint was also uncomfortable for most of the patients in the study, particularly in warm climates.27 Monga et al. reported a possibility of necrosis caused by the inner air splint pressure although no cases have been reported. They also found that it “tended to reduce the suspension of the prosthesis particularly in above knee amputees.”28

No recent studies have been prepared on the air splint. Most of the documentation about air splints comes from other literature reviews. Subsequently, there is not enough documentation from studies to form an opinion on this dressing.

Conclusion

While many studies have been conducted on alternatives to soft dressings, there is not a definitive conclusion on which type produces optimal outcomes. A better conclusion could be reached with a study directly comparing HOPS, RHDs, ZCasts, and air splints. There is also a lack of information on the ZCast with which to compare it to the other dressings. Overall, more research is needed to compare these dressings for there to be a set standard.29,30

References


Photograph courtesy of O&P Solutions, Dayton, Ohio.

The ZCast can be used alone as an RHD or with the addition of a splint and foot as an ROP. Photograph courtesy of SAM Sickness, Dayton, Ohio.