Using vacuum-assisted suspension to manage residual limb wounds in persons with transtibial amputation: a case series


Products

Vacuum-assisted socket system* (VASS)

* Harmony, Otto Bock (5 subjects); LimbLogic VS, Willow Wood (1 subject)

Major Findings

With VASS:

→ Wound closure is obtained while using the prosthesis
→ Allows for prosthetic fitting and walking despite the presence of an open residual limb wound with large surface area

Wound healing occurs while using VASS

Wound healing process shown for one representative subject. Subject was instructed to wear prosthesis as much as possible given any pain they may experience and not to limit their activities.

Population

Subjects: 6 transtibial amputees
Previous socket system: not reported
Amputation causes: 67% ulcer, 16.5% ischemia, 16.5% trauma
Mean age: 66.5 ± 5.5 yrs
Mean time since amputation: 8.0 ± 9.1 yrs
MFCL: not reported
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Study Design

Case series:

Data collection every 1–2 weeks

Results

<table>
<thead>
<tr>
<th>Category</th>
<th>Outcomes</th>
<th>Results for VASS</th>
<th>Sig.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wound Healing</td>
<td>Documentation of wound surface area using digital photographs</td>
<td>Wound closure was achieved for all 6 subjects within an average time of 177 ± 113 days while using the VASS.</td>
<td>n.a.</td>
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<td>Variability in time to heal is based on heterogeneity in health conditions, wound severity, and compliance in terms of wound care and prosthesis use.</td>
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</table>

* no difference (0), positive trend (+), negative trend (−), significant (++/−−), not applicable (n.a.)

Author's Conclusion

“We observed closure of residual limb wounds in six subjects with unilateral transtibial amputation while wearing VAS sockets. The results of this case series contribute to the growing body of evidence that suggests that VASS prostheses may be used while managing residual limb wounds in persons with transtibial amputation. The results suggest that a well-fitting socket with VASS in compliant individuals does not preclude wound healing and that wound closure is possible without limiting or halting activities.” (Hoskins et al. 2014)