Haiti O&P Response Grows

The 7.0 magnitude earthquake that leveled a large part of Haiti Jan. 12 is being pushed off the front page by other news and tragedies these days, but the scope of the disaster and the need for caring response from the international orthotics and prosthetics community have not diminished. Nearly six months after the worst earthquake to strike Hispaniola in 200 years, the initial estimates of 2000-4000 new amputees, among more than 300,000 people injured, are holding steady. With the country’s limited O&P rehabilitation facilities largely destroyed, the need for outside help remains critical.

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Meanwhile, interested groups have arranged for the outfitting of prosthesis labs for shipment to Haiti to meet the urgent needs of the people. For example, a group in Jackson-ville, Fla., arranged for the conversion of a standard ocean shipping container into a fully equipped O&P fabrication lab complete with patient fitting room. All work was funded by cash or in-kind donations from local businesses and residents.

When completed in May, the lab was shipped to a hospital in Milot, 70 miles north of Port-au-Prince and was seeing patients soon after arrival. Similar efforts are underway in other communities.

An Important Message To Our Referring Doctors O&P Medicare Referrals at Risk

As an orthotic and prosthetic facility that appreciates your past referrals and hopes to continue to be able to offer care to your patients, we want to make sure you are aware of a situation that will affect your ability to make Medicare referrals going forward.

CMS (the Centers for Medicare and Medicaid Services) is in the process of implementing new regulations that require all referring physicians to be enrolled in Medicare through the Provider Enrollment, Chain and Ownership System (PECOS) to continue their eligibility to refer their Medicare patients for orthotic and prosthetic services and supplies. These regulations were to take effect next January, but with the passage of the Patient Protection and Affordable Care Act earlier this year, the deadline for enrolling in PECOS was moved up to this July.

Effective July 6, 2010, physicians not enrolled through PECOS are no longer able to refer patients under Medicare for orthotics, prosthetics and supplies, as well as durable medical equipment and eventually clinical laboratory and radiological services.

To correct this situation, doctors who have not already done so will need to re-enroll with Medicare through PECOS. Until that is accomplished, neither our office nor any other O&P facility will be able to provide care to your Medicare patients after July 6, according to CMS.

Information on PECOS and how to enroll is available at www.cms.hhs.gov/MedicareProviderSupEnroll.

First Step

Getting the Most out of Summer

Summertime...and the living is easy. Warm weather brings opportunities for getting out of the house, experiencing the great outdoors, taking a break from the same-old routine and just enjoying life more. With some minor accommodations, these attributes can apply to people with limb loss every bit as much as anyone else.

Recreational Prostheses

There is little reason why most otherwise-healthy amputees cannot participate in popular activities of summer—swimming, sports, fishing, boating, going to the beach, etc. In fact, we can create special-purpose limbs incorporating components designed to allow and withstand the rigors of these particular activities.

Frequently, we can incorporate components from a patient’s old prosthesis into a swim leg or other special-use lower limb. For upper-limb patients we can also provide a wide selection of specialty terminal devices uniquely fabricated for particular sports and outdoor activities, including fishing, kayaking, baseball, golf, basketball, photography, bicycling, shooting and archery, among many others.

Summer Precautions

Whatever routine or specialty componentry an amputee may be wearing, the warm, humid weather typically experienced during the summer months presents certain health, fitting and comfort issues not as often encountered at other times of the year.

Periprosthetic—Amputees have added concerns as to how the body regulates temperature, particularly during summer, excess perspiration leading to wet environments—sweating—is less efficient. Enclosed within a well-fitting prosthesis socket, the residual limb is isolated from circulating air, so perspiration cannot naturally evaporate from the skin surface. Moreover, an amputee uses more energy during ambulation than people without limb loss, which naturally increases the body’s temperature and perspiration as well.

Particularly during summer, excess perspiration leading to wet skin and/or prosthetic interface (socket interior, gel liner) can produce a loose fit and reduced suspension, which may cause the limb to detach. In addition, skin gland secretions and bacteria will build up during prosthetic wear, which can lead to infection and potential skin breakdown.

(Continued on page 2)
Knee Disarticulation—Prosthetic Pros and Cons

Joint disarticulation at the knee, ankle and hip level ranks with the more controversial practices of amputation and prosthetic management. Knee disarticulation has been an option for more than 180 years, and despite many benefits, because the procedure also elicits design and cosmetic challenges, surgeons and patients more often opt for a higher level (and usually less functional) transfemoral amputation. Thus, knee disarticulations have been estimated to account for only 2 percent of limb loss in America. However, recent studies suggest the inherent functional advantages of the amputation level are translating into growing acceptance among surgeons and prosthetists.

The Benefits...

From a prosthetic standpoint, knee disarticulation (K.D.) may be the best choice for certain patient groups, notably children and trauma patients whose tibia cannot be saved but the femur is whole with good tissue for padding. Here are some key advantages:

- Because knee disarticulation leaves the femur intact with overlying soft tissue, the residual limb can usually tolerate distal (end) weight-bearing, a key improvement over a transfemoral amputation in which pelvic structures must provide most of the support. When the femur can in fact accept weight-bearing, the prosthetist can design a lower-profile socket with potentially greater comfort.
- No bones or muscles are cut in the surgery, so strength, muscle tone and balance are typically good. The intact femur provides a strong mechanical lever powered by strong muscles for effective ambulation, better sitting balance and leverage.

Weathering Summer Heat, Humidity

(Continued from page 1)

A good remedy is to remove the prosthesis, and liner if used, and thoroughly dry the skin, liner and/or interior socket surface, several times a day if necessary. Wearing a limb sock can help wick perspiration away from the skin while providing a cooling effect. Limb socks may need to be changed more than once a day during summer.

Both the residual limb and the socket interior should be washed thoroughly with soap containing hexachlorophene or another bacteriostatic agent daily. The more irregularly in warm, humid climates, additional treatment with an antiperspirant may be needed. If over-the-counter brands don’t provide needed relief, a dermatologist’s prescription for a stronger-ingredient product may prove worthwhile.

- Growth plates at both ends of the femur are preserved, a particular advantage for child patients. Moreover, the bony overgrowth common in children with a transtibial amputation is usually eliminated.
- By preserving the femoral condyles, a knee disarticulation provides a prominent base from which to suspend the prosthesis and help in controlling unwanted rotation.
- As compared with a transfemoral socket, which normally must extend up to the ischium for weight-bearing, the proximal end of a knee disarticulation socket fits much lower on the femur and can be made of softer material, providing substantially more comfort both standing and sitting.

...And the Drawbacks...

On the other hand, the long residual limb with its condylar prosthetic ances carries several disadvantages:

- The bulky distal end of the residual limb typically requires a special socket design, sometimes including one or more cutout openings for draining.
- The socket with distal padding, attachment brackets and knee mechanisms results in a long “prosthetic thigh,” which locates the prosthetic knee axis lower to the ground than that of the sound knee. (Little evidence exists, however, that this knee level difference is in fact physiologically or functionally harmful.)
- With the prosthesis applied, the residual limb may appear noticeably larger than the contralateral leg, presenting a self-image problem for some people. In fact, patients have been known to choose a higher-level amputation largely for cosmetic reasons.

Residual limb fluctuation—Another concern in the warm summer weather is volume fluctuation as the residual limb swells from exposure to heat. Some patients with a prominent medial condyle and/or high-strength product may prove worthwhile.

Componentry

The Socket—Because knee disarticulation patients can tolerate distal weight-bearing to differing degrees and residual limb features can vary widely, socket design is highly individualized and depends on the knowledge and experience of the prosthetist. Various approaches have been used to securely attach a knee disarticulation prosthesis to the intact femur. One popular design employs a flexible gel liner with air expulsion inside a rigid outer socket. The liner simplifies construction but precludes use of condylar suspension and minimizes the benefit of distal weight-bearing.

Some patients with a prominent medial condyle are candidates for a design incorporating a medial door and external strap with an inner liner, effectively reducing external distal socket bulk. Inclusion of inflatable pneumatic pads or silicone bladders can help overcome the difficulty of inserting condyles into a narrow socket hub but add to the wall thickness and socket complexity.

Knee components—Although relatively few prosthetic knee joints are built specifically for the knee disarticulation level, some of the many knees designed for transfemoral applications can be adapted for a K.D. limb. The problem with these knees is that they most always rest in a lower knee center than the sound limb and thus exaggerate the apparent thigh length difference. While single-axis knees incorporating friction, pneumatic and hydraulic control mechanisms can be used, polycentric designs provide a more proximal knee center and achieve better toe clearance in swing phase. Polycentric knees optimized for knee disarticulations minimize the attachment space beneath the socket and fold under during flexion to minimize the appearance of thigh length discrepancy. In general, the knee disarticulation offers significant prosthetic advantages and thus is worthy of consideration for many patients facing a lower-limb amputation.

Reaching out to Haiti

(Continued from page 4)

O&P practitioners from around the world are very much looking forward to their time to travel to Haiti and in these newly arriving O&P mobile units. At the same time, a program is getting under way to train Haitians to serve the displaced in Haiti’s emerging orthotic-prosthetic facilities.

To help the earthquake amputees of Haiti, visit the websites of Healing Hands for Haiti, www.healinghandsforhaiti.org and/or Handicap International, www.handicap-international.us. O&P lab built into a shipping container is now serving earthquake victims in Haiti.

Polycentric knee for K.D. limb

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Prosthetic Limb Alignment Leaps into 21st Century

Down through the years, a good functional prosthetic outcome has depended largely on two elements: a well-designed, comfortable socket with dependable suspension, and proper alignment of the limb componentry to provide the most efficient gait possible.

Historically, alignment has been a learned art, not easily mastered. But now in the 21st century alignment has become measurable science enabling prosthetists to maximize amputee gait performance in minimal time using a technological breakthrough called Compas™ (Compensation-controlled Prosthetic Alignment System).

Compos continuously measures dynamic forces and balance while the patient is standing or walking, indoors or outside, on any terrain. A sophisticated electronic instrument housed in a special Smart Pyramid™ prosthetic adapter is attached near the base of the socket to provide direct measurement of socket reaction forces during ambulation and communicates that data wirelessly via Bluetooth to gait analysis software on a PC. During the alignment, a removable unit attached to the Smart Pyramid provides poss microprocessor control and motion sensing.

The system interprets relevant information to allow for the prescription of amputee steps to provide prosthetic-specific gait analysis and instructions for alignment adjustments. The software computes from the Smart Pyramid with an advanced computer model of a well-aligned limb to establish whether and how the prosthetic is misaligned and provides the prosthetist with precise coronal and sagittal plane adjustments.

Compos shows the prosthetist precisely where the knee disarticulation offers significant prosthetic advantages and thus is worthy of consideration for many patients facing a lower-limb amputation.

Note to Our Readers

Mention of specific products in our newsletter neither constitutes endorsement nor implies that we will recommend selection of those particular products for use with any particular patient or application. We offer this information to enhance professional and individual understanding of the orthotic and prosthetic disciplines and the experience and capabilities of our practice.

We gratefully acknowledge the assistance of the following resources used in compiling this issue:

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