Newsletter

Prosthetics and Orthotics Clinic

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The Nature of Orthotics Practice

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How typical is YOUR orthotics practice? How extensively are plastic orthoses being utilized? How many KAFO wearers utilize a knee lock, and what kind? Examining the experience of a larger number of certified orthotists regarding these and other prescription issues is a logical way to gain perspective on contemporary orthotics management. Some time ago New York University Post-Graduate Medical School conducted a pilot survey of approximately sixty orthotists who were attending several short-term courses. While the sample was small and drawn largely from the Eastern seaboard, the completed questionnaires revealed a number of interesting trends regarding patient population, orthotic designs, and materials.

Among the most important of the preliminary findings is the overwhelming predominance of lower limb orthotics (LLO) practice over spinal (SO) and upper limb (ULO) activities by a ratio of 5 to 1 to 1; the continued preference, although small, for metal rather than plastic materials, especially for LLO's. Lastly, middle aged adults with upper motor neuron disorders (stroke, etc.) constituted the largest single type of patients requiring services.

Population

Although orthotists reported that they treated substantial numbers of patients in all age brackets, about 55% of the individuals fitted were between 18 and 60 years of age. Of the remaining 45%, the proportion of children below 18 years exceeded that of older adults (over 60) by a third.

Patients presented a wide variety of disorders. Among LLO wearers, more than half had upper motor neuropathies; approximately 30 percent had skeletal disorders, and the remaining 20 percent had lower motor neuron diseases. In contrast, the greatest number of ULO's were worn by persons with lower motor neuron lesions (42%), while the remaining individuals wearing ULO's experienced upper motor neuron and skeletal disorders in nearly equal numbers.

Materials

The great majority (80%) of orthotists responding used both metals and plastics in their LLO practice, however 10 percent stated that plastics constituted the primary or sole material in all LLO's they made, while the remaining 10 percent used metals only. Overall, the ratio of usage of aluminum to plastic to steel was 5 to 4 to 1.

Lower Limb Orthotic Designs

Among the lower limb devices fabricated, 63 percent were AFO's while 37 percent were HKAFO's, KAFO's, and KO's. Forty-six percent were unilateral AFO's and 25 percent were KAFO's applied unilaterally; 17 percent of the LLO were AFO's fitted bilaterally.

The solid stirrup was by far the most commonly used method of shoe attachment (42%), followed in turn by the split stirrup (20%), plastic shoe insert (18%), calipers (15%), and miscellaneous attachments (5%). About half of the LLO's prescribed permitted free or nearly free ankle motion of which 17 percent permitted free motion, and 37 percent utilized some form of motion assist, usually a coiled or wire spring. Approximately one-third of the ankle

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components limited motion in some way with 27 percent of such appliances utilizing stops, and 10 percent consisting of solid ankles. Such diverse components as dual action assists and double axis joints accounted for 11 percent of the orthotic ankles.

In relation to specific AFO designs utilized, the most frequently identified were patellar tendon bearing, Denis Browne, posterior leaf spring (both Rancho polyethylene and TIRR polypropylene), VAPC shoe clasp and the NYU insert.

As regards orthoses encompassing the knee and/or the hip, a single axis joint with drop lock, (with or without spring loading) accounted for nearly 70 percent of knee controls provided. Cam and plunger locks were very seldom used and only 13 percent of the orthoses had free knee joints, including single axis as well as offset and polycentric types. Regarding hip joints, the number of free single and double axis joints far exceeded that of any locking hip joints.

Approximately half of the orthotists reported making fracture LLO's of one type or another. A third had fabricated both AK and BK fracture orthoses, while nearly 10 percent had made only BK fracture orthoses and 5 percent had fabricated AK designs exclusively.

As for other specific KO and KAFO designs, orthotists constructed knee cages and trilateral Legg-Perthe's orthoses most commonly.

Upper Limb Orthoses

While as indicated, the survey focussed on LLO practice, several interesting facts concerning ULO management also emerged. The most frequently prescribed ULO was the opponens orthosis (70%), while 19 percent were provided with prehension orthoses with about 21 percent of this number being fitted bilaterally. External power was employed in only 3 percent of the fittings reported.

Although these preliminary data indicate some interesting patterns there is no doubt that it is not possible, at the present time, to present a satisfactory overview of the nature of orthotics practice, with any degree of confidence. This fact presents particular problems for the educational institutions who are obliged to teach students those procedures and techniques which are most widely utilized by the practitioners. The same lack of information causes severe difficulties for potential researchers in relation to their ability to identify and undertake valuable and meaningful projects. Consequently there is a crying need for more comprehensive and reliable information than is presently available. We therefore propose to obtain such data from as many certified orthotics facilities in the country as possible. A revised questionnaire has been prepared which attempts to obtain the most important, precise information regarding lower limb orthotics practice.

We request that each certified facility complete the questionnaire on pp. 8-10. It should take no more than 15-20 minutes. Return the completed form to Prosthetics and Orthotics, NYU Post-Graduate Medical School, 317 East 34th St., New York, NY 10016, by Sept. 15, 1980. Obviously only one questionnaire for each facility should be submitted, since any duplicate returns would tend to unbalance the information gathered. Lastly, in order to identify regional differences and to permit the possibility of follow-up contacts, we ask that each return be identified. In order to avoid any possible intrusion on confidential business statistics please note that all of the requested information is only in percentages of total practice.

Following the necessary period of time to accumulate, tabulate and analyze the data, a report summarizing the results of the study will be published in a forthcoming issue of the Newsletter. At a later time similar surveys relating to spinal and upper limb practice will be undertaken.

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