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FOLLOW-UP OF 30 CASES OF HOME USE OF PERONEAL BRACES

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ABSTRACT

Very little information is available on the patients' attitude toward peroneal stimulators and on the actual use they make of such devices at home. In order to fill this gap, 30 users of peroneal stimulators were interviewed by means of a questionnaire aimed at the identification of their subjective feelings and opinions concerning the use and the value of the device. Out of the 30 cases, six gave up the device within the first six months because of poor results or difficulties in its use. In two cases the stimulator was no longer necessary after respectively six and nine months of use.
Two patients stopped using the brace for reasons uncorrelated to the device itself. The remaining 20 cases were still using the brace after seven months and 18 of them (60%) were using it regularly outdoor in daily life. Therapeutic effect was reported in 16 cases (52%).

INTRODUCTION

A considerable number of papers have been published in the last few years on the techniques of Functional Electrical Stimulation (FES) applied to hemiparetic patients. Among these techniques, peroneal stimulation is certainly the most widely used. All reports however, are mainly concerned with clinical evaluations and measurements of parameters such as force, gait kinematics, EMG, etc. The opinion of the final user, the patient, is rarely mentioned. It was the purpose of this work to fill this gap by reporting the results obtained by means of a questionnaire sent to 30 hemiparetic subjects using peroneal braces at home. The questionnaire was carefully prepared in order to avoid ambiguous questions and to provide possibility of double checking of answers. In order to avoid possible conditioning of the answers the questionnaire was not sent by the physiatrist who had prescribed the brace, but by the engineering team who had developed it. The questionnaire was proposed as a request of information and criticism for the improvement of the device.

METHODS

The questionnaire was organized in three groups of questions. The first concerned patient's data, such as age, time from lesion, time from the beginning of FES use. The second concerned the use of the brace, that is the modes of operation used, the number of hours/day and of days/week of use, the use outdoor , problems and difficulties of applications. The third group concerned the result obtained and asked for indication of date and reasons of interruption of FES use, orthotic value, improvement of voluntary movement and not assisted gait, decrease of spasticity.
All patients had used a stimulator during their hospitalization time and

had received a device to take home. Since the device was assigned for ever, the criteria for patient selection was mainly based on the orthotic value of FES. A second criteria was the ability of the patients to wear the stimulator with limited or no help.

RESULTS

The results presented are totally based on the assumption of reliability of the patient's answers. Unfortunately a detailed medical control of the patients was not possible and in any case would have provided a double cheking of only a few of the answers given.

Fig. 1 a) and b) show the age and time from lesion distribution of the 30 patients and the subdivision in males/females and in right/left paresis. Ten patients out of 30 stopped using the device. Fig 1 c) shows the distribution of the time of use for such 10 cases and Table I gives the times and the reasons for giving up the device.

Table II showes how and how much the patients used the brace while Table III shows the distribution of the therapeutic effects observed. Again it must be underlined that these indications are coming from the patients and are not medical evaluations. These data should trigger a closer clinical follow-up of the peroneal brace users in order to verify to what degree the subjective reports correspond to objective improvements.

CONCLUSIONS

The results obtained are encouraging. The low number of "drop-outs" for brace related reasons (6 cases) shows that the selection criteria were

basically correct. The high number of "therapeutic" effects reported shows that the quantitative improvement observed in other studies (1) has a subjective counterpart. Such effect is particularly interesting in these patients since their time from lesion is rather high. (see Fig. 1 b). This experience shows that it would be very useful to allow the patients to evaluate a brace for at least four weeks before the device is finally assigned. It is also clear that some problems appear between the 3rd and the 6th month (see Fig. 1 c) probably due to evolution of the situation and uncertainty of the patients. These problems could probably be overcome by proper medical advice.

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TABLE I - Reasons for peroneal brace use interruption

	N	Time of use (months)
Reasons not related to the device or to its effects	2	1,1
Problems with electrodes and practical difficulties	3	5,6,6
Results below expectations	3	1,4,5
Gait improvement (brace no longer required)	2	6,9
T o t a l	10	

TABLE II - Modes and times of brace use (30 cases)

	No. of cases	average hours/day 5 to 7 days/week
Cycling mode only	5	1,5
Orthotic use only indoor	7	2,3
Orthotic use also outdoor	18	4,0

TABLE III - Therapeutic effects reported

	No. of cases	%
1. Non assisted gait improved	16	53
2. Voluntary control improved	17	57
3. Spasticity decreased	13	43
4. None of the above	8	26
5. One of the above (1,2,3)	6	20
6. Two of the above (1,2,3)	8	26
7. Three of the above (1,2,3)	8	26

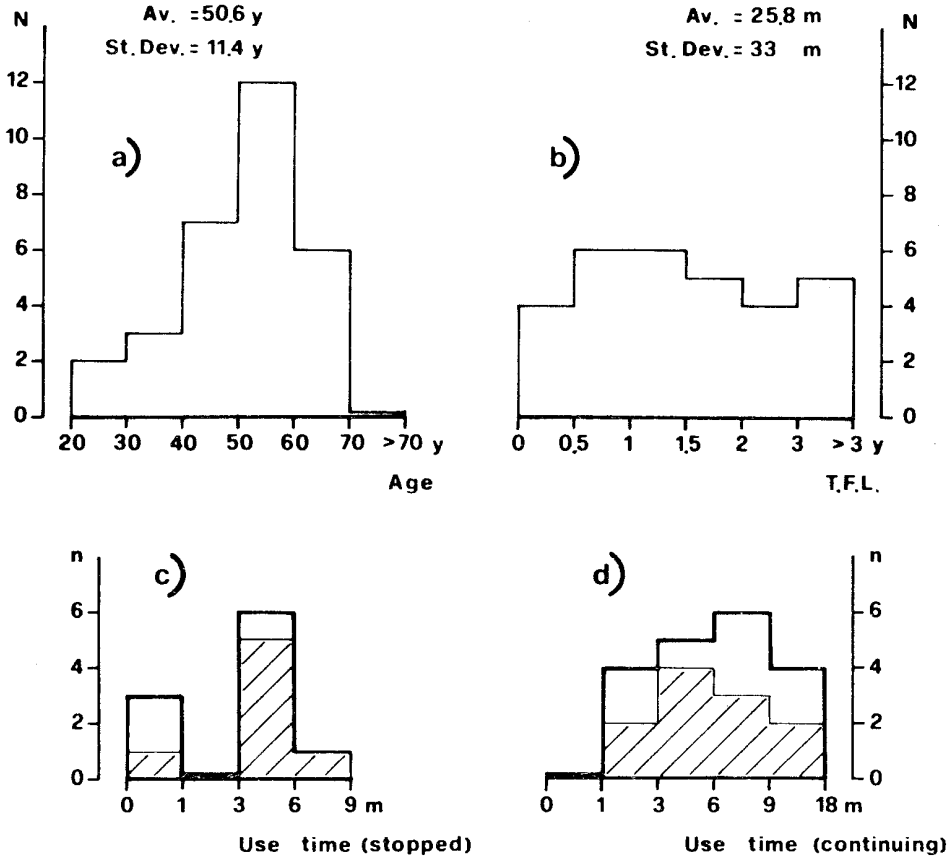

FIG. 1. a) Age distribution of the patients.

b) Distribution of time from lesion (TFL) at the beginning of FES use.

c) Distribution of use time for patients who stopped using FES.

d) Distribution of use time for patients who are continuing FES use.

▨ FES use outdoor.

Males : 20. Females : 10. Right hem. : 16. Left hem. : 14.