Electric-Powered Wheelchair (EPW) electronic system Adaptation to Pathology Progression. Experience from our younger neuromuscular patients

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EPW are classically equipped with a standard electronic system allowing basic functionalities including:
- variable and controlled speed driving;
- position changing.

Due to the negative and polymorphous progression of our patient’s deficiencies, the electronic system can become unable to meet the patient’s new needs. Adaptation of the EPW with an upgradable electronic system offers new possibilities to patients allowing:
- continued use of the EPW with/for;
- increase of autonomy and control on their environment.

This electronic system evolution can provide:
- new modalities of driving with new input devices: mini joystick, latched mode…;
- more positions offered with new electrical functions, a better actuators management (stroke, speeds, “therapeutic” positions …);
- effective role on environment with standards channels (IR, Bluetooth) or specialized channels (x 10, zWave).

Power wheelchair can be equipped by the manufacturer, during the initial order, with an upgradable electronic system, at an increased cost. The initial choice of an upgradable electronic system that will adapt to the progression of the deficiencies is very important. Otherwise, it is not necessary to renew the whole EPW, as often recommended. Nevertheless it is often cost effective to upgrade the electronic system even if minimally or not covered by health insurance. This upgrade allows keeping the wheelchair for which positioning work has already been done and funded.

Further reading


Conservative treatment of camptodactyly by successive splinting


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Camptodactyly (Greek camptos: bend + dactylos: finger), which was described by Landouzy, is defined as a permanent flexion of the proximal interphalangeal joint (PIP). It is most often a deformity of the little finger. Two types have been described: a congenital type and an acquired (adolescent) type. Eighty percent of cases, if untreated, showed no improvement or got progressively worse. Surgery is rarely indicated because of disappointing results. Conservative treatment must be tried first, to recover the passive and active range of motion of the PIP.

Aim.– To assess efficacy of successive splinting in camptodactyly.

Method.– The occupational therapist make a low temperature thermoformable splint. Wrist and metacarpo-phalangeal joint are in neutral position or in extension. Affected PIP are postured with strapping and foam units for each treated finger to form supports and to control the finger rotation. It is a sleep splinting. It is a retrospective study about 30 camptodactylies which received a conservative treatment in the department. Splint making by the occupational therapist, evolution follow up and spint adjustment or replacement each two weeks or each month.

Results.– The treatment lead to a complete (62%) or sub-complete (fissum PIP < 10°: 38%) recovering of all the camptodactylies at the end of the treatment.

Discussion.– Treatment is often long (average 7 months). Compliance and tolerance are good for nursing whom splint are put by the parents when sleeping, sometimes it’s more difficult in acquired type. Long-term efficacy needs to be evaluated.

Further reading


Introduction.— Pulmonary Rehabilitation (PR) is an evidence-based and multidisciplinary intervention designed for COPD patients allowing to improve their autonomy in Activities of Daily Life (ADL) and their Quality Of Life (QOL). The intervention of an occupational therapist during comprehensive PR is now clearly demonstrated and recommended. Nevertheless, standardized protocols of intervention of Occupational Therapy (OT) and definition of OT’s roles during PR are lacking.

Aim and methods.— The aim of this study is to propose some guidelines about specific roles and interventions of OT during PR based on a review of the literature and our experience in Cliniques Universitaires Saint-Luc (CUSL).

Results and discussion.— There is a lack of randomised controlled trials (RCT) about specific roles of OT during the PR. Following our experience in CUSL, the evaluation and the education of COPD patients can be considered as the key roles of the OT. Global OT intervention in PR should include at least: assessment of patient’s autonomy in ADL; proposal of economical strategies, technical support and environment’s modifications facilitating the ADLs’ achievement; COPD patient’s self-management; therapeutic education sessions.

Concerning the therapeutic education, the role of the occupational therapist is first to identify the patient’s needs and the activities that pose difficulties in their daily lives through various tools (as the Canadian Model of Occupational Performance). Therapeutic education will then aim to reduce energy costs (for example, learning appropriate positions) and ventilatory costs (modification of activities’ procedure) of the patient in ADL. The occupational therapist also uses motivational interviewing in therapeutic education. It is necessary for behavioral changes and essential in patient’s compliance during the PR.

Conclusion.— OT is an effective intervention for COPD patients during PR that improves their ADL and QOL, and must be promoted to evaluate and solve problems related with respiratory disability. Although it lacks RCT, we can propose some clinical guidelines about specific roles of OT during PR.

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