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Application Process of Robot in Occupational Therapy in Japan

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Background

Robotics technology has been remarkably developing all over the world. Some robotics technologies have already applied to "rehabilitation robot".

Objectives

The objectives of this research were to study the availability, problems and possibilities of utilizing robot in OT in Japan.

Method

A comprehensive literature review was carried out. Keywords were "robot",

"Occupational therapy" by using ICHUSHI Web Ver4.0 is the most popular medical literature retrieval system in Japan. The surveyed period was from 1983 to 2009. The date of search was March 25, 2009. We studied and analyzed different data regarding availability, problems and possibilities of robot in occupational therapy from contents of papers.

Results

There were two research papers and fifteen proceedings. These papers reported developing process of rehabilitation robots, practical reports using them and authors' opinions (evidence of level 4 or 5). Robots used in OT classified into next three groups; 1) using them as training devices for upper limb functions (4 papers), 2) using them as welfare equipments; robots that supported eating activity, prosthetic limbs by robotics technologies (8 papers) and 3) using them as pet robots (5 papers). The main functions of robots were to provide precise data of clients, reproducible methods (4 papers), to save labor (3 papers), to encourage self-support (2 papers), to heal clients (2 papers). On the other hand, effects of robots therapy depended on clients' medical condition (6 papers). Some clients didn't like robots (3 papers). Some OTRs needed learn the trick so as to operate robots (2 papers).

Discussion & conclusion

These results showed that there were three fields to use rehabilitation robots. These robots were useful for some clients; however their effectiveness had depended on individuals' clinical conditions or interests, and the need for supports by OTRs to adapt skillfully robots to clients. We think OT's approaches by using robots should be also developed as well as other OT's devices. In the next phase, we should prove evidence of usefulness or adaptation of robots by randomized controlled trial; RCT in order to form a useful device in OT.

Our research will contribute improvement of the quality of the activities.