MPC-KNEE AS FIRST CHOICE ON TRANS-FEMORAL AMPUTEES

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BACKGROUND

Hydraulic mechanical knee has over the last decades been the most common knee-solution when providing Trans-Femoral (TF)-amputees with a first prosthesis. The application process of having a Micro-Processor Controlled-knee (MPC-knee) will often take long time before approval. The patients (≤ 65 years) learn to walk with knees that they don´t really trust, their walking pattern in many cases become rather abnormal and in particular more or less permanent. At same time the science tells us the importance of early mobilisation[1] and significant decrease in falls[2] with MPC-knee.

OBJECTIVES

What effects would we gain if we would have the possibility to fit the amputees with an MPC-knee from start? Will the amputees obtain a better walking pattern and get rehabilitated in a shorter period of time? And will this be possible in the current, rather time consuming, application process?

METHODS

By selecting three new AK-amputees at our Rehabilitation Clinic a small pilot study was designed. The inclusion criteria was amputees 65 years or younger, fully mobile 3 months prior to the amputation without any walking aid, with standard or long stump and possible to be fitted with AK- prosthesis. The sockets were manufactured with direct lamination-technique (DS-socket™ Össur) to optimize the post-op process.

Pic 1. Patient using MPC-knee early in the rehab phase

The patients were fitted after at least 4 weeks of compression treatment with silicone liner, maximum 10 weeks postoperative, with or without totally healed wounds. They were filmed in their first week of walking training, totally time of rehabilitation and TUG was measured. An Össur Rheo knee® trial-unit were used and initially set with higher Stance flexion (≥80) on even surface.

RESULTS

The method of using the DS-socket technique in combination with early MPC-knee, the patients were able to ambulate with or without crutches/walking sticks, from the first day of fitting. This also seemed to preserve more of the normal walking pattern. In comparison with earlier cases the amputees felt higher reliability to the prosthetic-knee from start.

The time of Rehabilitation (measured in day of transcription) were significant shorter. By always having a trial knee in stock, the application-process did not affect the initial fitting as it used to do.

CONCLUSION

There are most likely a combination of actions that affected the rehabilitation outcome for the new amputee. In this study we found improved sensation and security of walking for the amputee, which also led to a shorter rehabilitation time when using a MPC-knee in our rehabilitation settings. A higher initial stance flexion-resistance and an early mobilisation made it easier for the amputees to keep more of their normal walking habits, findings that conforms the outcome of previous studies[1]. Our findings also support other studies outcome regarding the cost/benefit analysis with MPC-knees compared with increased quality of life[3]. Despite the limited number of users in this study, these results might be useful in the future local discussions with prescribers when applying for the rather costly MPC-units.

REFERENCES

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