

# **Robots for stimulating emotions – first experiences with patients with unresponsive wakeful syndrome**

Prof. Dr. Barbara Klein<sup>1</sup>, Thomas Kaspar<sup>2</sup>

<sup>1</sup> Fachhochschule Frankfurt am Main – University of Applied Sciences (FH FFM), Nibelungenplatz 1, 60318 Frankfurt am Main, Germany, E-Mail: bklein@fb4.fh-frankfurt.de

<sup>2</sup> Arbeiterwohlfahrt Kreisverband Frankfurt am Main (AWO), E-Mail:

## **Background and objectives.**

Unresponsive wakefulness syndrome is a new term for the persistent vigilant coma or apallic syndrome. Dealing with patients suffering from the unresponsive wakefulness syndrome is a challenge for the patients´ relatives and the nursing care profession. Due to medical progress the number of people suffering from unresponsive wakeful syndrome and also their life expectancy is increasing. Since 1995 the neurological phase model of the German Federal Association for Rehabilitation (BAR) was implemented all over Germany. Patients in Phase F have severe damages of the nervous system and had no functional improvements in the previous rehabilitation phase. The robot seal PARO has been designed for therapeutic purposes in the healthcare sector. Meanwhile dozens of research projects are looking on effects of the seal in different application fields (e.g. 1, 2, 3). The project "PARO and Co.- Robots in Nursing Home Care" has implemented the therapeutic seal PARO in a nursing care homes of the AWO District Association which has a ward with residents with the unresponsive wakeful syndrome in Phase F. Objective of a small qualitative study was to find out whether PARO can contribute to the patients´ wellbeing or even stimulate some form of response.

## **Methods**

An assessment instrument developed in the project "Paro & Co." for people with dementia (4) was adapted and contained following items: measurement of vital signs before and after PARO intervention, observation of eye movement, facial expression, six basic emotions of Paul Ekman added by restlessness, relaxation / ease of tension, tension, the kind of intervention and assessment by the professional caregiver. Two male persons with hypoxic brain damage and two women with cerebral trauma took part. Informed consent was obtained by the legal custodian for all participating residents.

## **First Results**

Professional caregivers suggested that PARO had a positive effect on three of the patients; one patient did not change usual behavior. Two of the residents changed their reactions in a third of the interventions, one person changed in 42% of all interventions. Subjects of change were muscle tonus, eye movement and breathing. Feelings assessed by the professional caregivers were mostly relaxation/ease of tension and joy, followed by tension.

## **Literature**

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4. Rosenberger, Philipp (2013) Untersuchung des Veränderungspotenzials von emotionaler Robotik in Bezug auf die Verhaltenssymptome Demenzkranker am Beispiel der therapeutischen Robbe PARO. Fachhochschule Frankfurt am Main BA-Thesis (unpublished)