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Physical activity amongst hemodialysed patients – why lack of motivation to exercise is present?

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Abstract

In recent years a great interest in rehabilitation and physical activity amongst hemodialysed patients have developed. Despite having numerous exercise options, adverse effects of a lack of movement still are seen in this group of patients. The reasons of insufficient physical activity amongst hemodialysed patients are complications related to

chronic diseases and renal replacement therapy. For patients suffering from kidney failure it is crucial to adhere to recommendations relating to regular physical activity in order to maintain health and good quality of life.

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In recent years a great interest in rehabilitation and physical activity amongst hemodialysed patients have developed. According to NKF-KDOQI (National Kidney Foundation Kidney Disease Outcomes Quality Initiative) guidelines hemodialysed patients are advised to perform regular physical activity. Moreover, all medical personnel (especially nephrologists, physiotherapists, nephrology nurses) should encourage patients to take up physical activity [1].

Hemodialysed patients can choose from variety of exercise: walking, dancing, yoga or fully personalised training programs. In certain Dialysis facilities patients are able to train using cycloergometers or use personalised training programs while dialysis is being performed. Despite this recommendations patients suffering from end – stage renal disease are frequently less physically active compared to same – age population without any kidney – related diseases [2-5]. Worsening health, fatigue, malaise and renal replacement therapy makes it harder to maintain proper physical activity, which leads to worsening of physical capacity, degenerative changes of muscle and bone tissue, and increased risk of fractures [6-9]. The reasons of insufficient physical activity amongst hemodialysed patients are most often complications related to chronic diseases and renal replacement therapy. Other reasons include uremic atrophy and disfunction of skeletal muscles, anaemia, oxidative stress, neurohormonal disorders, depression, anxiety and psychosocial disorders [8-12].

Reports about problems in handling everyday activities may be another confirmation that hemodialysed patients lack proper physical activity. It was proven that amongst hemodialysed patients aged more than 65 years old 83% needs assistance with performing household activities, 81% with shopping, 80% with laundry, 68% with preparing meals, 52% with walking on stairs, 49% with moving around the apartment, 48% with bathing [13,14].

An important issue related to lack of physical activity in hemodialysed patients is Frailty Syndrome, characterised as lower physical performance and malaise. It was shown that in end – stage renal disease it is significantly more common than in equal – age population [15,16].

Presence of several factors related to the presence of chronic kidney disease and necessity to undergo renal replacement therapy also decrease the ability to take up physical activity. Factors causing absence of exercise are: feeling tired, lack of motivation, absence of partners, no safe environment to perform exercise, frequent doctor's appointments, fear of falling or fear of damaging vascular access for hemodialysis. Despite patients frequently are interested in taking up training, listed limitations often doesn't allow them to participate [17-19]. Moreover, chronic illness and renal – replacement therapy result in decreasing motor abilities, reduce amount of available time and even interfere with circadian rhythm. Another compound problem in this population is presence and development of disability [20]. Also fluid intake restrictions may further decrease one's physical activity [21]. It needs to be highlighted than patients undergoing hemodialysis are frequently reluctant to taking up exercise programs, which often makes cooperation in this area difficult [22,23] – in spite having the opportunity to exercise in some Dialysis facilities in Poland, even during hemodialysis, patients often don't use it at all [20]. As mentioned, lack of proper motivation, and lack of perspective to fully recover may make exercise unattractive.

It is crucial to formulate adequate recommendations to the patient, explain them and highlight their importance [17].

Complex nephrological rehabilitation program should be performed taking under consideration general assumptions of cardiological rehabilitation – but after targeted modifications. Type and intensity of physical activity should always be individually chosen for each patient, taking under consideration all diseases and contraindications. For nephrological patients physical activity which don't result in creating oxygen debt is most

recommended – e.g. Nordic walking or bike exercises [24-26].

Most frequent form of everyday physical activity, which is safe and available, is walking [11]. In literature there is plenty of experimental papers in which pedometers or accelerometers were used as a simple measuring tool to monitor patient's activity in rehabilitation programs for hemodialysed patients (Nowicki et al.). Pedometers are often used not only for objective evaluation of one's physical activity [27,28], but also to provide everyday motivation for further increase of activity [27,29].

In recent research it was shown, that games basing on augmented reality may increase mean time of physical activity amongst young people [30-35]. Perhaps a well-designed app may also encourage hemodialysis patients to exercise more? Another interesting solution to the problem of lacking physical activity is telerehabilitation, in similar matter as in cardiologic telerehabilitation programs. Telerecorders providing healthcare professionals with patients parameters such as EKG graph, BPM and BP could also remind patients to exercise more. Telerehabilitation would also provide sense of security guaranteed by live – monitoring [36,37]. A perfect solution would be creation of interdisciplinary medical centres oriented on complex nephrological rehabilitation and providing education about the need to exercise and all the possible benefits [5,19].

Physical activity in hemodialysed patients is essential in prevention of cardiovascular incidents, improvement of biochemical test results and decreasing body mass. Professional rehabilitation programs would also provide safe methods to perform exercise, as patient medical history will be considered [38].

Patients suffering from chronic kidney disease are proven to benefit from physical activity in numerous ways [13]. Regular exercise improves physical and mental health, biochemical test results, hemodialysis efficiency and graft's function [26,39-41]. Numerous research shows that both low – intensity and high – intensity exercise are effective for hemodialysis patients [42]. Personalised low – frequency exercise, in home conditions are generally well – tolerated and are suitable for patients aged above 65 years old with end – stage renal disease, and lead to improvement of physical condition [2,43]. Similar results may be obtained using supervised cycloergometer training programs [44].

Chronic Kidney Disease has a great impact on public health, mostly related to renal – replacement therapy and progression of disability. However, physical activity of hemodialysed patients is still too low – in spite of recommendations. The problem of low physical activity among patients undergoing dialysis is being frequently discussed. It is crucial to encourage hemodialysed patients to take up more exercise, to introduce proper monitoring gear and new forms of activity. Benefits of regular physical activity needs to be discussed more [45,46].

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