



Service Priorities and Programmes
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Executive function testing using HK-MoCA and C-EXIT25 is more sensitive than Mini Mental State Examination (C-MMSE) in identifying cognitive impairment in pre-peritoneal dialysis patients – single cen

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Introduction

Most of chronic kidney disease stage 5 (CKD5) patients opted for long-term dialysis will be started on peritoneal dialysis (PD), based on “PD first policy” in Hong Kong. Some elderly patients may not be able to perform bag exchanges by themselves, as a result of physical limitations and/or mild cognitive impairment (MCI). The pre-dialysis assessment by Renal nurse, evaluating patient’s capability in performing bag exchanges, is all along experience based and subjective. In addition, conventional gold standard Mini-Mental State Examination (MMSE) will only help to pick up patients with more advanced cognitive impairment. More sensitive tools in identifying MCI will be desirable, so that service providers can have better idea on the patient’s ability, and have better planning on the need for helper in performing bag exchanges in future.

Objectives

To establish the efficacy of executive function testing tools (HK-MoCA and C-EXIT25), compared to C-MMSE, in identifying MCI in elderly CKD5 patients during pre-dialysis assessment. In addition, for those recruited into long-term peritoneal dialysis (PD), to compare the results of these cognitive assessment tools with experienced renal nurse assessment, on subsequent PD training outcome.

Methodology

Seven CKD5 patients with borderline ability for self PD were identified in Renal nurse led pre-dialysis clinic. Two spouses (who would be the potential helpers for PD bag exchanges if the patients failed self PD training) were included as control. Executive function testing using locally validated tools (HK-MoCA and C-EXIT25), as well as the standard Chinese version Mini-Mental State Examination (C-MMSE), were performed in all nine subjects, to look for evidence of mild cognitive impairment (MCI), with respect to different domains of higher cognitive function. For those patients who chose to enter into dialysis program, renal nurse assessment for feasibility for self PD, and

PD training outcomes were all recorded as outcome measures.

Result

F:M =6:3, mean age 72.7. All seven patients had significant co-morbidities. All seven patients had C-MMSE above cutoff points. They all failed in HK-MoCA. Six patients failed C-EXIT25 and only one patient passed the test. The two potential helpers passed all three tests. In HK-MoCA, all patients had preserved language ability. Some items in executive function tests showed high discriminating power e.g. alternating trail making and serial 7 subtraction in MOCA; number letter task, interference task, Go/No Go task, and Serial Order Reversal Task in C-EXIT25. Three patients opted for supportive treatment. One patient (planned for helper CAPD) was put on temporary hemodialysis and died of pneumonia later. Two patients were put on helper assisted peritoneal dialysis (one automated PD (APD), one continuous ambulatory peritoneal dialysis (CAPD)), same as the renal nurse assessment. The remaining patient was started on self CAPD training (as nurse assessment showed adequate ability for self CAPD) but failed CAPD training, requiring conversion to helper CAPD. These findings illustrate that C-MMSE is not sensitive in detecting mild cognitive impairment in the study cohort. Executive function testing using HK-CoCA and C-EXIT25, is more sensitive in detecting mild cognitive impairment. In addition, executive function showed reasonable correlation with PD training outcome. Large scale study with special focus on PD training outcome measures and technique survival is required before implementation into pre-PD assessment.