

P111

## P111 -Identification of symptom clusters using the Kidney Symptom Questionnaire in patients with CKD stages 3b-5 not on dialysis

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### Purpose:

Often under-recognised and under-managed in clinical practice, CKD patients have a high and overwhelming symptom burden [1]. Symptom burden is not well managed in routine renal practice although it is an important predictor of reduced QOL among those with CKD [2]. Recent reports from the 'UK Renal Registry and Transforming Participation' in CKD support the use and need of measuring symptom burden in patients [3].

Symptom cluster research in CKD is beginning to emerge although most existing studies occur in the advanced stages of the disease (i.e. end stage/dialysis) [1,4,5]. Using cluster analysis, we aimed to identify symptom patterns in patients with non-dialysis dependent CKD. Symptom cluster identification could provide new directions for the assessment of and efficient interventions for a number of CKD symptoms.

### Methods:

Self-reported symptoms of 149 CKD patients (41% females, mean age, 55.7 (SD: 16.6) years, eGFR, 44.4 (SD: 24.0) ml/min/1.73m<sup>2</sup>) were assessed using the recently validated Kidney Symptom Questionnaire. The 13 symptoms were classed as binary variables (i.e. apparent and non-apparent) and cluster analysis [average linkage (between groups) squared Euclidean distance] was used to visualize symptom patterns in a dendrogram and proximity matrix table. Clusters were determined at a combine distance cut-off of 7.5.

### Results:

In order of prevalence, the top five most common symptoms were: 'Feeling tired' (87%); 'Polynocturia' (74%); 'Sleep disturbance/insomnia' (72%); 'Feeling cold' (70%); 'Cramp/muscle stiffness' (70%).

Cluster analysis revealed 6 distinct symptom clusters (as seen in the dendrogram, Figure 1). Cluster 1 included fatigue/sleep-related difficulties such as 'Feeling tired' and 'Polynocturia'. In this cluster, 'Sleep disturbance/insomnia' and 'Cramp/muscle stiffness' combined early to create a sub-cluster. Cluster 3 related to more physiological effects such as 'Pain in bones/joints'. In this cluster, 'Loss of muscle strength/power' and 'Shortness of breath' combined early forming a distinct sub-cluster. 'Loss of appetite' and 'Restless legs' clustered together as Cluster 6. 'Feeling cold', 'Loss of libido' and 'Itching' clustered as individual symptoms (Clusters 2, 4 and 5).

### Conclusion:

We identified 6 unique symptom clusters in patients with non-dialysis dependent CKD. The two largest clusters could be broadly divided into 'sleep/fatigue'-related symptoms and physiological difficulties (e.g., pain, dynapenia, and dyspnea). Previous research in advanced CKD has identified clusters of fluid volume, sexual, neuromuscular, gastrointestinal and psychological [4].

Routine clinical assessment and management strategies targeted at the cluster level could have synergistic effects in reducing the burden of CKD symptoms. However, it is important that assessment of symptoms is standardised across clinical and research practice. Targeted interventions addressing symptom clusters,

rather than symptoms in isolation, may confer more favorable alleviation of the overall symptom burden experienced by people with CKD [1].