

## Editorial

# Food Frequency Questionnaire – An Urgent Need for CKD Patients in India

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India is a varied land of food customs, culture and religious background, which gets reflected in individual diet patterns. Accurate estimate of habitual dietary intake remain a challenge.

Dietary assessment methods are used for quantification of both short and long term (habitual) dietary intakes and are essential tools in epidemiological investigations and intervention studies for assessing relationship between diet and disease in both general population and clinical settings. Food records (or diaries), 24 hour recalls and Food Frequency Questionnaires (FFQ) are the 3 principal assessment methods that are used traditionally to measure dietary intake.

FFQ is a finite list of food and beverages, commonly consumed by the population, in which respondents have to indicate the frequency of consumption of each item over a specified period of time. In semi-quantitative FFQ, information on portion size as standardized portion is collected. FFQ is frequently used in large epidemiological studies and is the only method that has been used extensively to assess diet-disease relationship. According to Potischman and Wild CP direct assessment of dietary intake may be more informative than the biomarkers [1,2].

Prevalence of Chronic kidney disease (CKD) in the Indian population cannot be correctly assessed due to absence of a renal registry. The approximate prevalence of CKD is 800 Per Million Populations (pmp) and incidence of ESRD is 150-200 pmp [3]. 90% of the CKD patients cannot afford dialysis due its costs. Since India has limited resources, it is more appropriate that efforts are directed towards prevention of CKD rather than treatment.

With increasing number of patients with CKD, including those undergoing Maintenance Haemodialysis (MHD) treatment in out-patient, periodic assessment of dietary intake will help in the management and to improving clinical outcome related to diet. Patients undergoing MHD commonly develop Protein-Energy Malnutrition (PEM) which is associated with severe complication and poor survival; however presence of PEM at the initiation of MHD is directly correlated with increased risk of mortality and morbidity.

In India, diet-disease relationship in chronic disease like CKD

has conventionally been studied using other methods of food intakes, most notably the 24 hour recall method. 24 hour dietary recalls are adequate in circumstances where the diet is relatively unchanging. There have been a few validated FFQs that are developed in India, but none for patients with CKD on MHD. Hence it is increasingly important to develop FFQ, so that a proper intervention and counseling can be done to prevent further deterioration of patients' quality of life as well as to serve the need of public health researchers and clinicians.

To link information from the FFQ to the nutrient database there are several programs available, which gives an output of average nutrient and food group consumption per day and weekly basis.

Studies which have been conducted across the globe have reported use of FFQ to improve clinical outcome of patients.

Kalanter-Zahid et al. [4] has shown that periodic assessment of dietary intake across a given dialysis population may help improve clinical outcome related to such nutrients as dietary protein, phosphorus and potassium.

Results from the study conducted by Noori et al. [5] has shown higher dietary phosphorus intake and higher dietary phosphorus to protein ratio are associated with increased risk in MHD patients.

Bharati A.V. et al. [6] developed a FFQ to assess the relationship of diet & disease with reference to CHD separately for urban and rural population in South India. The results indicated 14 urban and 8 rural foods explained total 90% of variance for total energy intake. Daily intakes for most nutrients and food groups were two to three folds higher in the urban than in the rural group.

Nutrition for patients on MHD is very important in decreasing complication and improving the quality of life of the patients. Dialysis patients are at high risk of abnormalities in their nutritional status due to uremic anorexia, dietary limitations, physical inactivity, chronic inflammation, co-morbidities and metabolic derangements. These growing ESRD patients need constant monitoring of several bio chemical parameters like haemoglobin, creatinine, albumin, sodium, potassium, calcium, phosphorous etc which affect the health of the patients. Laboratory readings indicate the units of these readings while the diet measures would indicate how these parameters can be controlled to some extent.

The dialysis FFQ may be useful tool in examining diet related outcome in CKD patients. This being convenient, especially if self-administered for use in large scale population; large temporal catchment (months to years) and thus robust to the effect of seasonal variation. Relatively high degree of reliability in ranking subjects across each food item feasibility, easy administration and low cost for large scale epidemiological studies are some of the advantages of use of FFQ.

However there are challenges. Data collected may not represent the habitual intake. Estimates derived from FFQ data do suffer from random and systematic error.

Since “Gold standard” as an accurate reference is not available, relative validity of FFQ is usually assessed by comparing their data with food records. But food records may introduce bias. To avoid false association between diet and the diseases, validation of the designed FFQ is essential.

In India, evaluation of the food lists of published FFQs developed for Kerala, Gujarat and Lucknow show that less than 20% of foods are similar across the FFQs due to regional variations in food habits [7-9].

Differences in food habits make it necessary in India to use a separate FFQ that is validated in each region for CKD patients.

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