Can incremental haemodialysis be implemented as the default method for starting haemodialysis?

**Introduction**

Incremental haemodialysis (IHD), in which dialysis dose is adjusted to take into account residual kidney function (RKF) usually by starting dialysis twice rather than thrice weekly, has been associated with improved maintenance of RKF and improved survival in observational studies. Maintenance of RKF is itself associated with improved small and middle molecule clearance, better health-related quality of life, reduced erythropoietin requirements, reduced ultrafiltration requirements, and improved control of blood pressure, nutritional status and phosphate levels. We sought to find out if incremental dialysis can be implemented as the routine method of starting haemodialysis.

**Methods**

IHD was agreed as being the default method for starting HD. A protocol with criteria for excluding patients from starting IHD, was agreed. Residual kidney function on IHD was measured with monthly 24 urine collection for urea clearance and calculation of total weekly Kt/V. Patients would convert to thrice weekly HD if the total urine volume was <600ml, urea clearance <3 ml/min K+ >5.7 mmol/l, weekly Kt/V <2.0, excess fluid gains or UF rate >10ml/kg/hr.

Organisation of measurement and analysis of RKF was done by a specialist nurse with results discussed with a consultant and recommendations sent to consultants reviewing the patients.

**Results**

Incremental dialysis was started on 18/08/2020. Up to 25/05/2021 24 patients have started RRT. Of the 14 who started hospital HD, 12 started with twice weekly incremental HD (Age range 53-81, 4 male 8 female). Two patients started haemodialysis directly on to a 3x weekly prescription, one because of significant excess fluid, the other because of concern about the potential for subsequently declining to change to three times weekly dialysis when indicated.

On 25/05/21 eight IHD patients were still dialysing twice weekly (See Fig 1) out of a total hospital HD population of 101 patients. The length of time spent on IHD varied from 22 to 273 days. Four patients converted to 3x weekly HD after 53,76,142 and 169 days because of: 2 patients fluid overload, 1 loss of urine volume, 1 loss of overall adequacy.

Since the start of the programme there have been a total of 461 dialysis sessions delivered twice weekly, saving 231 sessions and the same number of patient return journeys.

Patient feedback has been positive with appreciation of the benefits of less frequent attendance for dialysis. Moving to three times weekly has been generally accepted with no patient declining to change.

**Conclusions**

It has proved practical and effective to implement IHD as the default option for starting HD. 12 of 14 HD patients started this way in the time period studied. Significant savings have been made and are continuing with currently 8% of the total hospital HD dialysing twice weekly, representing a reduction in weekly HD sessions delivered of 2.7% of total sessions. Financial costs of monitoring RKF are insignificant, although there is a time cost of arranging urine collections, collating results and calculating weekly Kt/V.

Incremental haemodialysis should be more widely adopted as a reasonable way for the majority of patients to start haemodialysis.