MONITORING OF FLUID OVERLOAD IN A DIALYSIS NETWORK

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Introduction

Fluid status is well established as a major factor influencing clinical outcome and treatment costs in hemodialysis patients. A fluid management program (FMP) is being rolled out within the NephroCare (Fresenius Medical Care) which operates dialysis services in >850 clinics in the regions of Europe, Middle East, Africa and Latin America. A hydration status score (HSS) has been incorporated within a NephroCare Balanced ScoreCard (BSC) system to assess treatment quality.

Methods

The basis of the FMP is the BCM—Body Composition Monitor. The BCM allows an objective estimation of fluid overload (FO) and each clinic in the NephroCare network performs a measurement on a monthly basis. A patient card allows data to be transferred to a clinical information system. The HSS requires a measure of the relative fluid overload (RelFO) which is determined by dividing the FO by the extracellular water (ECW). This procedure normalises the patient's fluid status compensating for patients of different body weight. It has been shown previously that there is a survival improvement in those patients where RelFO is maintained below 15%. [Wizemann et al. NDT 2009].

Three ranges for the HSS apply namely:
< =15% RelFO
<15% to 20% RelFO
>20% RelFO.
These ranges score the points 1, 0.5 and 0 respectively.

We monitored growth of the FMP over the last 2 years and the assessed the recent distribution of FO in those patients measured in the network. Data were interpreted in terms of median and 25th to 75th percentiles.

Results

At the time of the July 2013 analysis, the FMP was measuring 28,115 patients with BCM per month, equivalent to ca. 1000 patients/day. See Fig 1.

In July 2013, the median, 25th and 75th percentiles of FO were found to be 1.78 L (0.91 L to 2.73 L) as shown in Fig 2. RelFO results were 10.85% (5.71% to 15.90%) respectively. Regarding the HSS in July 2013, 71% of patients were < 15% RelFO.

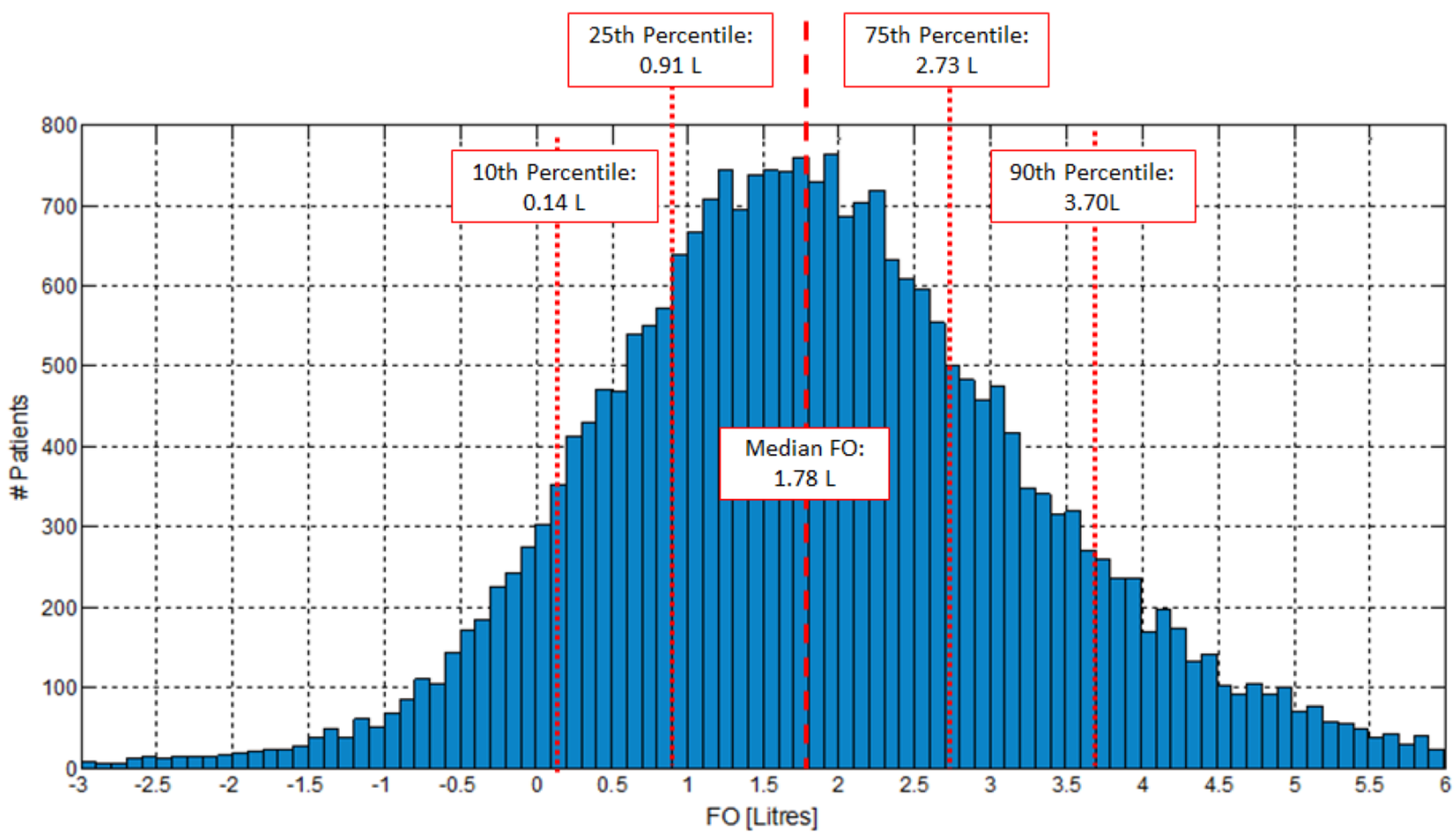

Figure 2. Distribution of FO in all patients measured July 2013

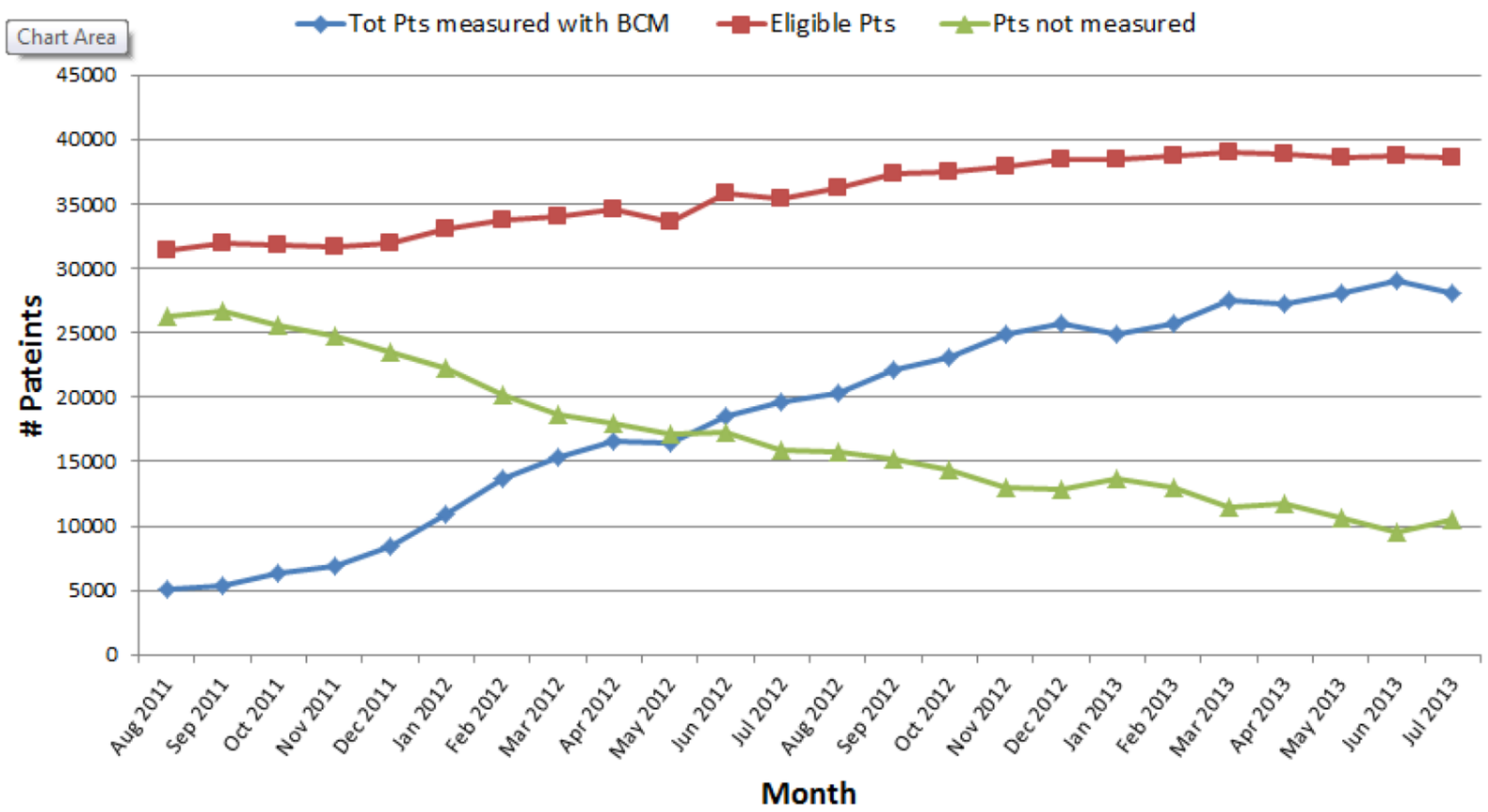

Figure 1. Growth of Fluid Management Program (FMP) in NephroCare clinics

Conclusions

The FMP is active in a majority of the NephroCare clinics. RelFO < 15% by sensitive new tool (BCM) is achieved in most patients. The 30% of patients with RelFO >15% provides some basis to challenge clinical judgement. The HSS component of the BSC allows patients with high FO to be identified and corrective treatment to be planned through a peer review process.

Fluid overload can be measured objectively in the routine clinical setting which allows comparison of patients and clinics on a large scale.

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