

Changes in body weight and overhydration in patients after starting peritoneal dialysis

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BACKGROUND

Significant weight gain is a potential problem in most patients starting peritoneal dialysis. Excessive weight gain during the first year of peritoneal dialysis is associated with inflammation, diabetes, and rapid decrease of RRF. Overhydration is a common problem in peritoneal dialysis patients. The abnormal state of overhydration has been related to arterial hypertension, signs and symptoms of pulmonary and peripheral oedema, heart failure, left ventricular hypertrophy, and other adverse cardiovascular effects. It has been well established that the changes produced over time in body weight among peritoneal dialysis patients are due to changes both in body water content and lean tissue/fat mass.

METHODS

Retrospective research was conducted in the Division of Nephrology, University Hospital Merkur. Body weight and bioimpedant spectroscopy measurements were performed in the moment of peritoneal dialysis initiation. Additionally, the measurements were also performed 6 and 12 months after starting PD.

THE AIM

To determine changes in body weight and overhydration in the first year of peritoneal dialysis treatment.

RESULTS

- We evaluated 11 patients (four female and seven male, median age 46).
- At the moment of peritoneal dialysis initiation the mean body weight was 81.77 ± 20.03 kg, prevalence of obesity was 54%, and the mean BMI was 26.59 ± 4.92 .
- One year after the start of PD increased body weight occurred in 7 patients, while 2 patients experienced a decline in their BW. The mean weight change after one year of PD was 1.06 ± 4.87 kg.
- LTI has not changed over a year of PD (14.57 ± 3.23 vs. 14.7 ± 2.89 ; $p=0.97$), neither did FTI (12.03 ± 5.69 , vs. 11.1 ± 4.15 ; $p=0.91$).
- All of the patients at the start of the PD treatment had preserved residual diuresis, the mean 2.18 ± 0.77 L.
- After 12 months residual diuresis above 1500ml were present in 9 patients, additionally 1 patient was anuric.
- Hydration status was stable over the follow-up period (2.13 ± 1.65 L vs. 2.5 ± 1.79 L; $p=0.84$).

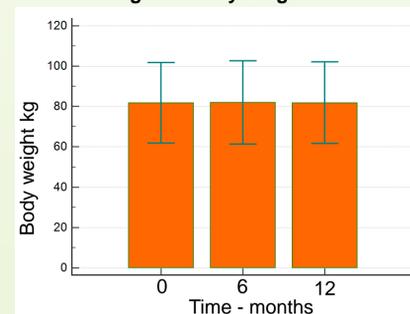
CONCLUSION

After a year of monitoring no statistical significant difference has been noticed in the increase of body weight and overhydration. Adequate management of patients on PD leads to a decrease in number of possible complications and provides the patient with the desired quality of life.

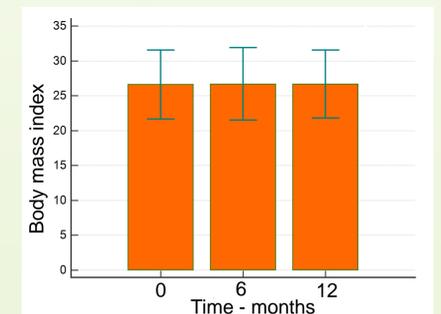
Table 1. Demographics and clinical data

Numbers of patients	11		
Sex M/F	7/4		
Age (years)	46 ±14,40		
DM	27%		
Clinical data	Baseline	After 6 months	After 12 months
Body weight (kg)	81.77 ±20.03 kg	81.93 ±20.64	81.85 ±20.20
BMI	26.59 ±4.92	26.68 ±5.20	26.66 ±4.87
LTI	14.57 ±3.23	14.78 ±2.81	14.7 ±2.89
FTI	12.03 ±5.69	11.16 ±4.88	11.1 ±4.15
Overhydration (L)	2.1 ±1.65 L	2.0 ±1.46	2.5 ±1.79
Diuresis (ml)	2180 ±0.77 L	1800 ±951	1720 ±860
BP systolic (mmHg)	140.45 ±23.60	130.27 ±21.37	147.90 ±18.52
BP diastolic (mmHg)	90.72 ±10.52	84.81 ±10.78	92.27 ±10.33

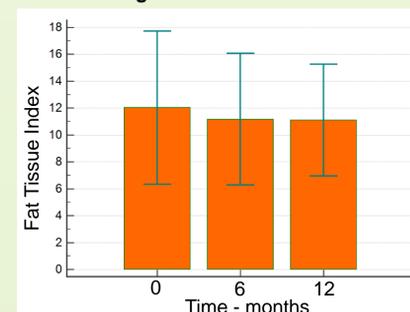
Graf 1. Changes in body weight



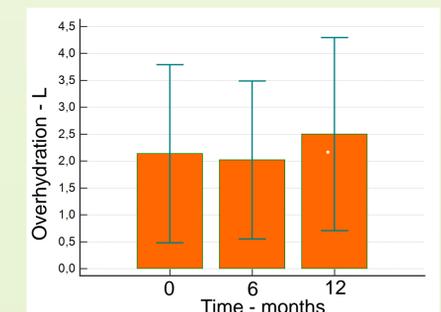
Graf 2. Changes in Body Mass Index



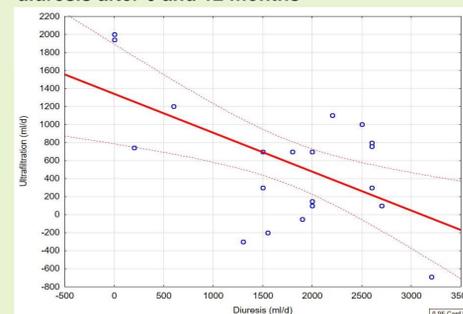
Graf 3. Changes in Fat Tissue Index



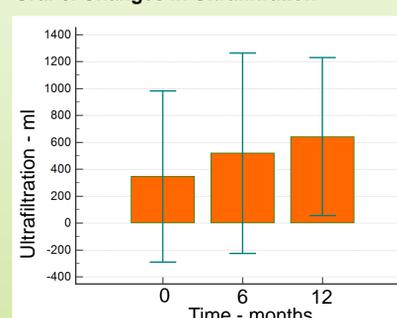
Graf 4. Changes in Overhydration



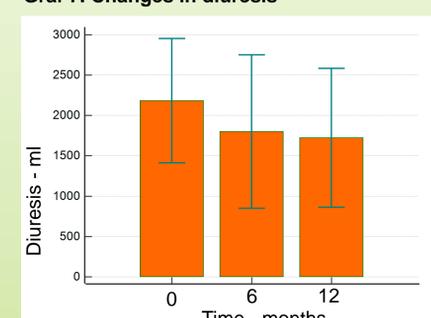
Graf 5. An association between ultrafiltration and diuresis after 6 and 12 months



Graf 6. Changes in Ultrafiltration



Graf 7. Changes in diuresis



REFERENCES

- Kim, Jwa-Kyung, et al. "Excessive weight gain during the first year of peritoneal dialysis is associated with inflammation, diabetes mellitus, and a rapid decrease in residual renal function." PloS one 10.9 (2015): e0139033
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