ONLINE HEMODIAFILTRATION REDUCES BISPHENOL A.

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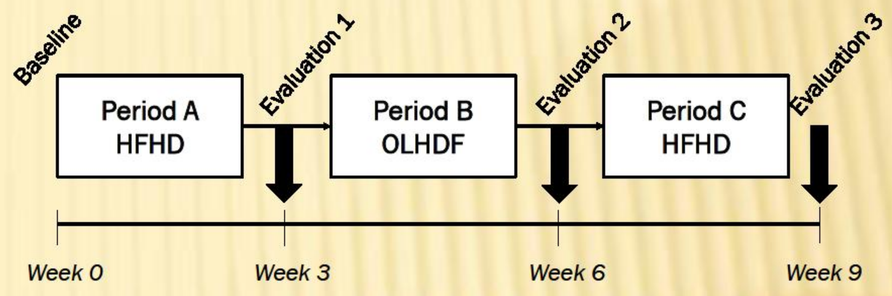
INTRODUCTION.

Several uremic toxins have been identified and related to higher rates of morbi-mortality in dialysis patients. Bisphenol A (BPA) accumulates in patients with chronic kidney disease (especially in those on dialysis) due to insufficient renal excretion. **The aim of this study is to demonstrate the usefulness of online hemodiafiltration (OL-HDF) in reducing BPA levels.**

METHODS.

Thirty stable hemodialysis patients were selected to participate in this paired study. During three periods of three weeks each, patients were switched from high-flux hemodialysis (HF-HD) to OL-HDF, and back to HF-HD. BPA levels were measured in the last session of each period (pre- and post-dialysis) using ELISA and HPLC. Reduction rates of BPA were measured in each period.



DESIGN

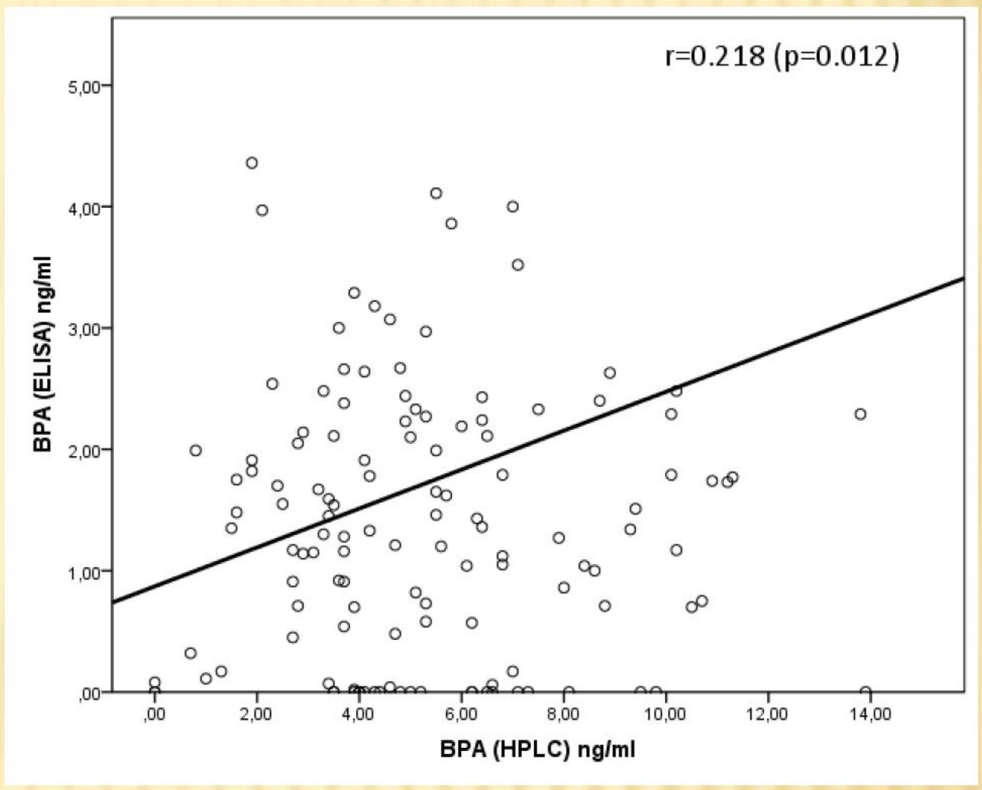
RESULTS.

Baseline characteristics.

	N (%)
Sex (male)	19 (86.4)
Age (years)	73 ± 14*
Dialysis vintage (months)	51 (24-67)#
Etiology of CKD	
- Vascular disease	5 (22.7)
- Glomerulonephritis	5 (22.7)
- Diabetes mellitus	4 (18.2)
- Interstitial nephritis	4 (18.2)
- Others	2 (9.1)
- Unknown	2 (9.1)
Diabetes mellitus	9 (40.1)
Hypertension	19 (86.4)
Dyslipidemia	16 (72.7)
History of cardiovascular disease	13 (59.1)
Vascular access	
- Autologous	14 (63.6)
- PTFE	1 (4.5)
- Catheter	7 (31.8)
Kt/V	1.7 ± 0.2*
Convective volume (litres)	24 ± 4*
Blood flux (ml/min)	369 ± 33*
Membrane	
- Polysulfone	9 (40.9)
- Polyacrylonitrile	12 (54.5)
- Acrylonitrile	1 (4.5)
Residual diuresis	4 (18.2)

*Mean (standard deviation), # Median (interquartile range)

Correlation between BPA levels with ELISA and HPLC (Regression equation: y = 0.871 + 0.160X).



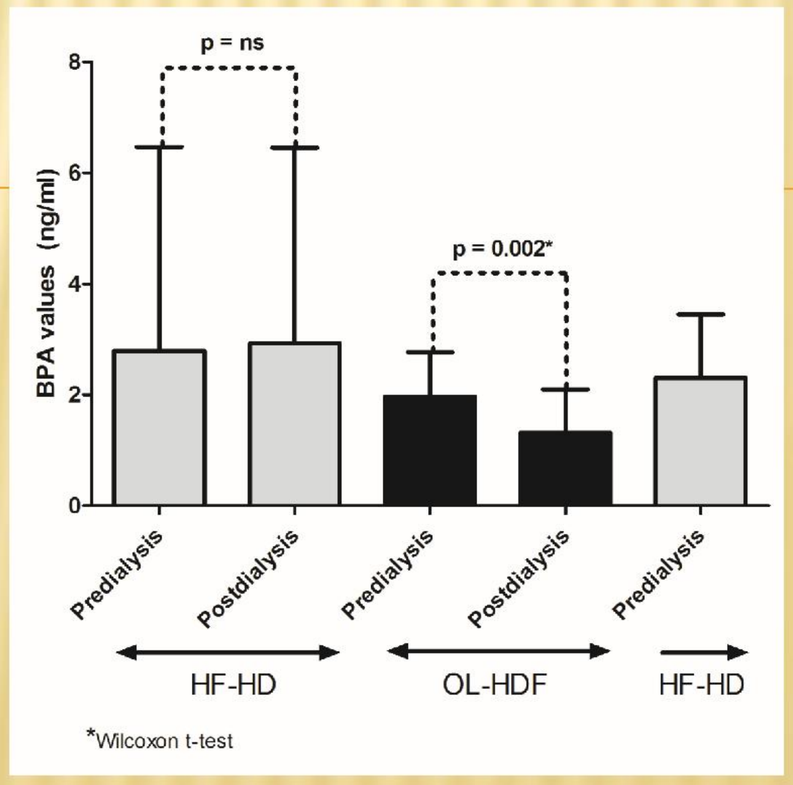
Bisphenol A levels at the end of each period.

	HF-HD	OL-HDF	P
Total BPA (HPLC)	7.5 ± 3.5	6.7 ± 2.5	0.34
Conjugated BPA (HPLC)	6.2 ± 3.1	5.7 ± 2.3	0.10
Free BPA (HPLC)	1.3 ± 0.8	0.9 ± 0.6	0.58
Free BPA (ELISA)	2.6 ± 3.4	1.6 ± 1.0	0.23

Mean ± SD (ng/ml). Wilcoxon test.

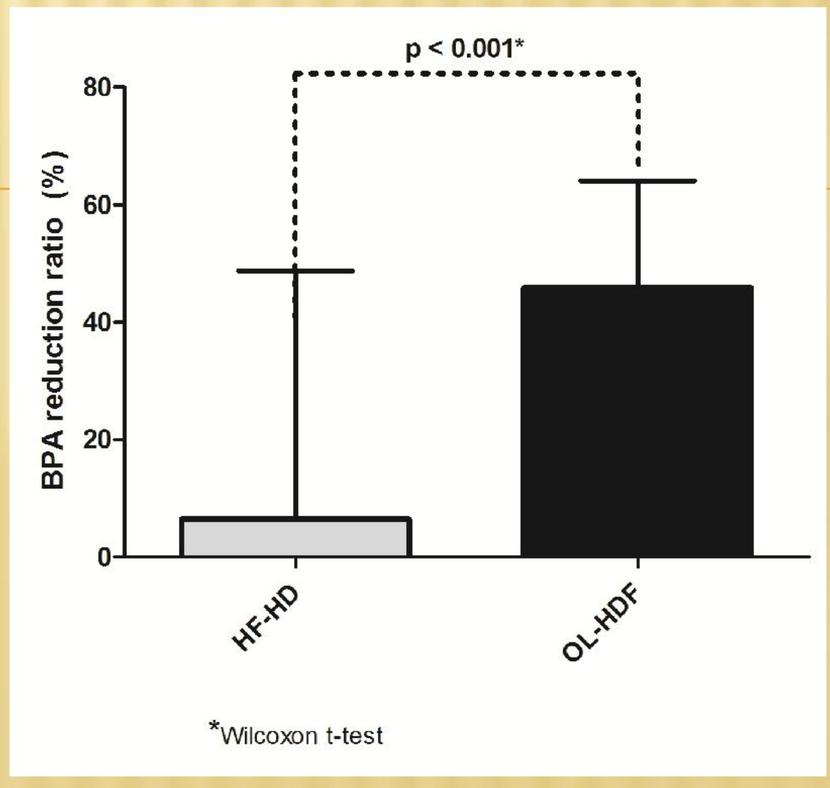
Bisphenol A reduction with dialysis.

Free BPA levels with different dialysis techniques (in grey HFHD and in black OLHDF).



*Wilcoxon t-test

Reduction percentage of free BPA with different dialysis techniques (in grey HFHD and in black OLHDF).



*Wilcoxon t-test

CONCLUSIONS. hemodialysis patients have high levels of BPA that can be reduced with OL-HDF. Prospective studies must be conducted in order to elucidate the impact of these findings on the prognosis of hemodialysis patients.

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