PHENOL AND P-CRESOL DEPURATION IN HEMODIALYSIS WITH DIFFERENT MEMBRANES AND TECHNIQUES

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Introduction: Phenol and p-cresol are uremic toxins that due to their protein-binding their elimination in hemodialysis (HD) is hindered. There is controversy whether On-line hemodiafiltration (HDF) is more efficient in their depuration. Adsorption may be an important mechanism depending on the technique and the solute.

Aim: To learn the elimination rate of p-cresol and phenol with different membranes and hemodialysis techniques.

Methods: 16 patients, 13 males, mean age 62±17,5 years.
A 4-hour long dialysis session was carried out, on the intermediante week day for 4 consecutive weeks with each of the following:

Polymethyl methacrylate 2,1 m^2 HD (PMMA-HD) and HDF (PMMA- HDF); Polysulfone Toray 2,1 m^2 HD (PS-HD) and HDF (PS-HDF)

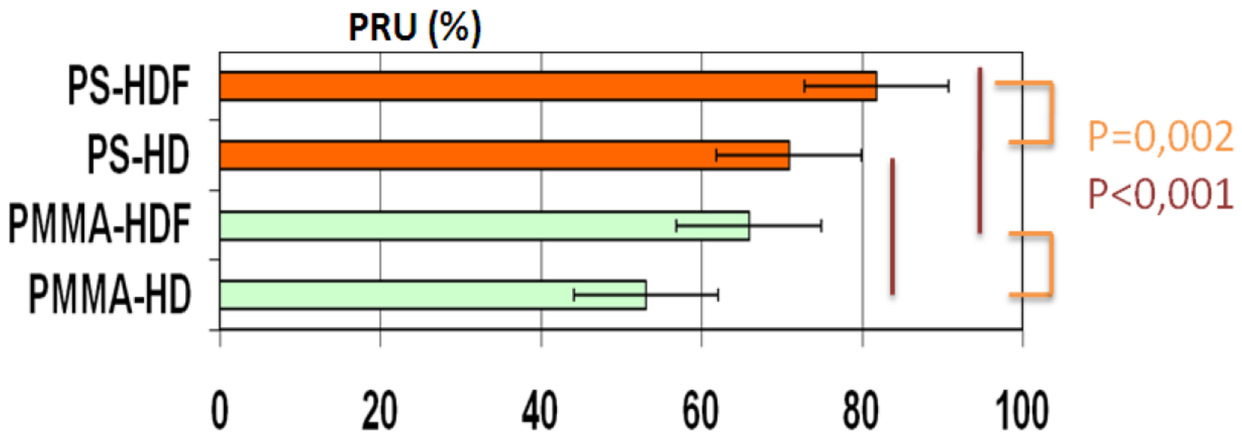
In each session pre and post-dialysis plasma levels of the following were determined:

Phenol and p-cresol, Total proteins, Albumin, β_2-microglobulin, Urea

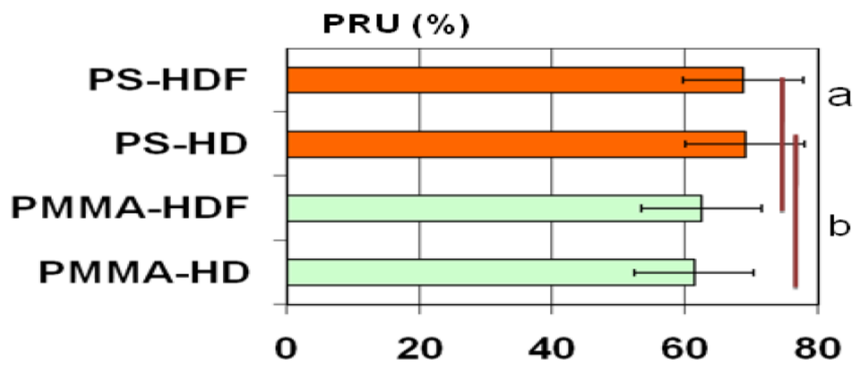
	PMMA-HD	PMMA-HDF	PS-HD	PS-HDF
Blood volume(L)	86,2±7,5	88,4±6,9	89±4,6	87,8±5,3
Infusion volume (L)		17,6±2,3		26,1±2,4 [a]
Kt (L)	54,0±4,4	56,1±4,9	56,7±3,7	59,9±3,3 [b]

a) p< 0,001 vs PMMA; b) p= 0,02 vs the rest

B-2 MICROGLOBULIN

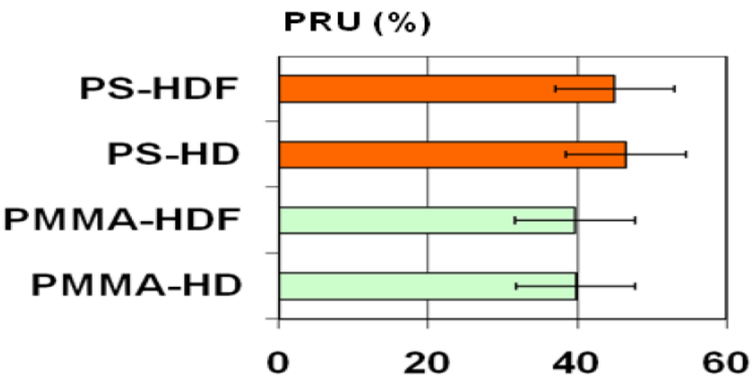


PHENOL



a) p= 0,045 b) p= 0,025

P-CRESOL



p= 0,06

Conclusions:

1) In HD and HDF elimination of phenol is greater than that of p-cresol.
2) HDF does not increase the elimination of p-cresol and phenol compared to high-flow HD in neither of the two studied membranes.
3) PS membrane achieves a greater elimination rate of phenol and β-2 microglobulin than PMMA in both HD and HDF

DOI: 10.3252/pso.eu.52era.2015