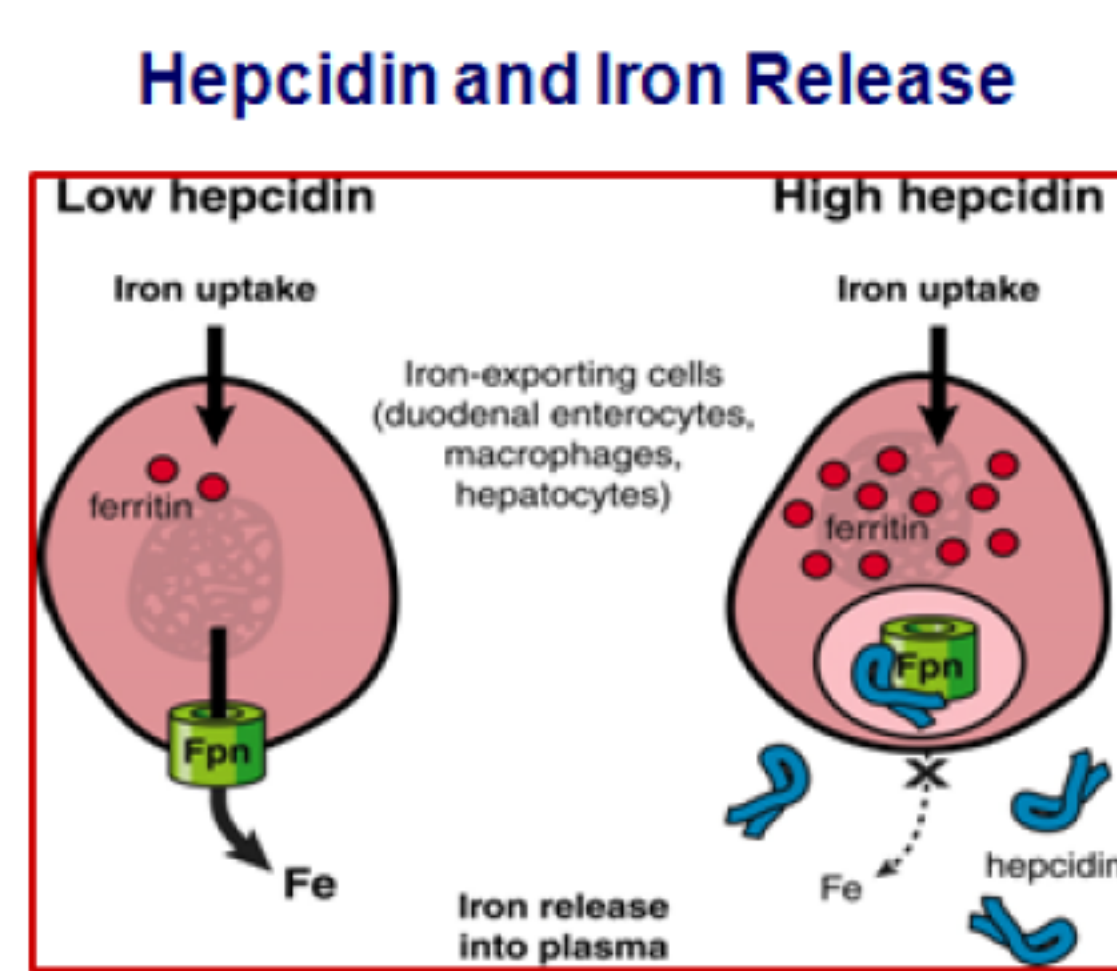


ON-LINE HEMODIAFILTRATION AND ERYTHROPOIETIN RESISTANCE IN HEMODIALYTIC PATIENTS: ROLE OF HEPCIDIN. RESULTS FROM REDERT STUDY.

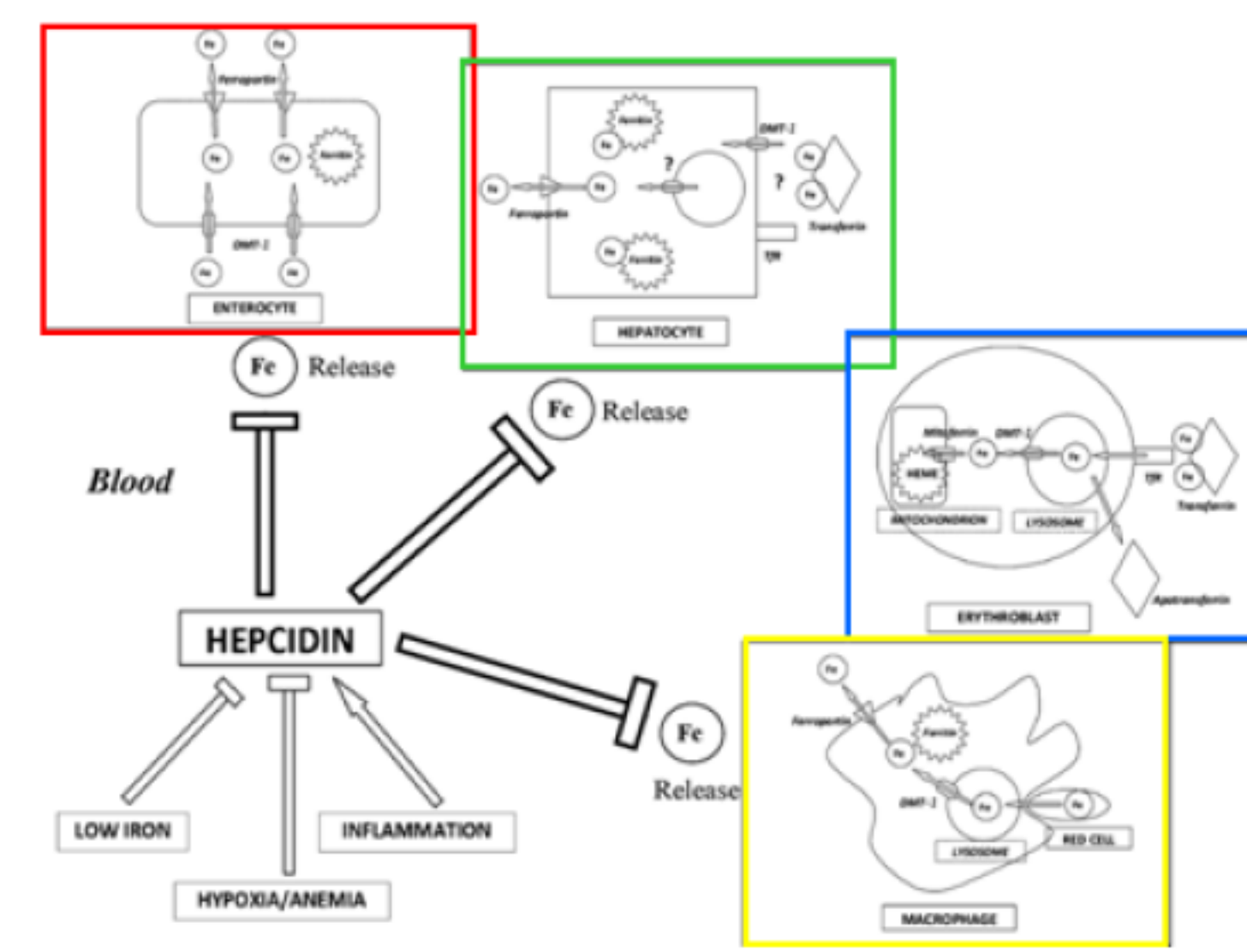
Panichi V.1, Rosati A.2, Casani A.3, Conti P.4, Capitanini A.5, Scatena A.1, Migliori M.1, Giusti R.2, Malagnino E.2, Betti G.3, Bernabini G.4, Gabbriellini C.4, Rollo S.5, Caiani D.6, Pizzarelli F.6.

1 UOC Nephrology and Dialysis, Versilia; 2 UOC Nephrology and Dialysis, Lucca; 3 UOC Nephrology and Dialysis, Carrara; 4 UOC Nephrology and Dialysis, Grosseto; 5 UOC Nephrology and Dialysis, Pistoia; 6 Firenze OSMA, Italy

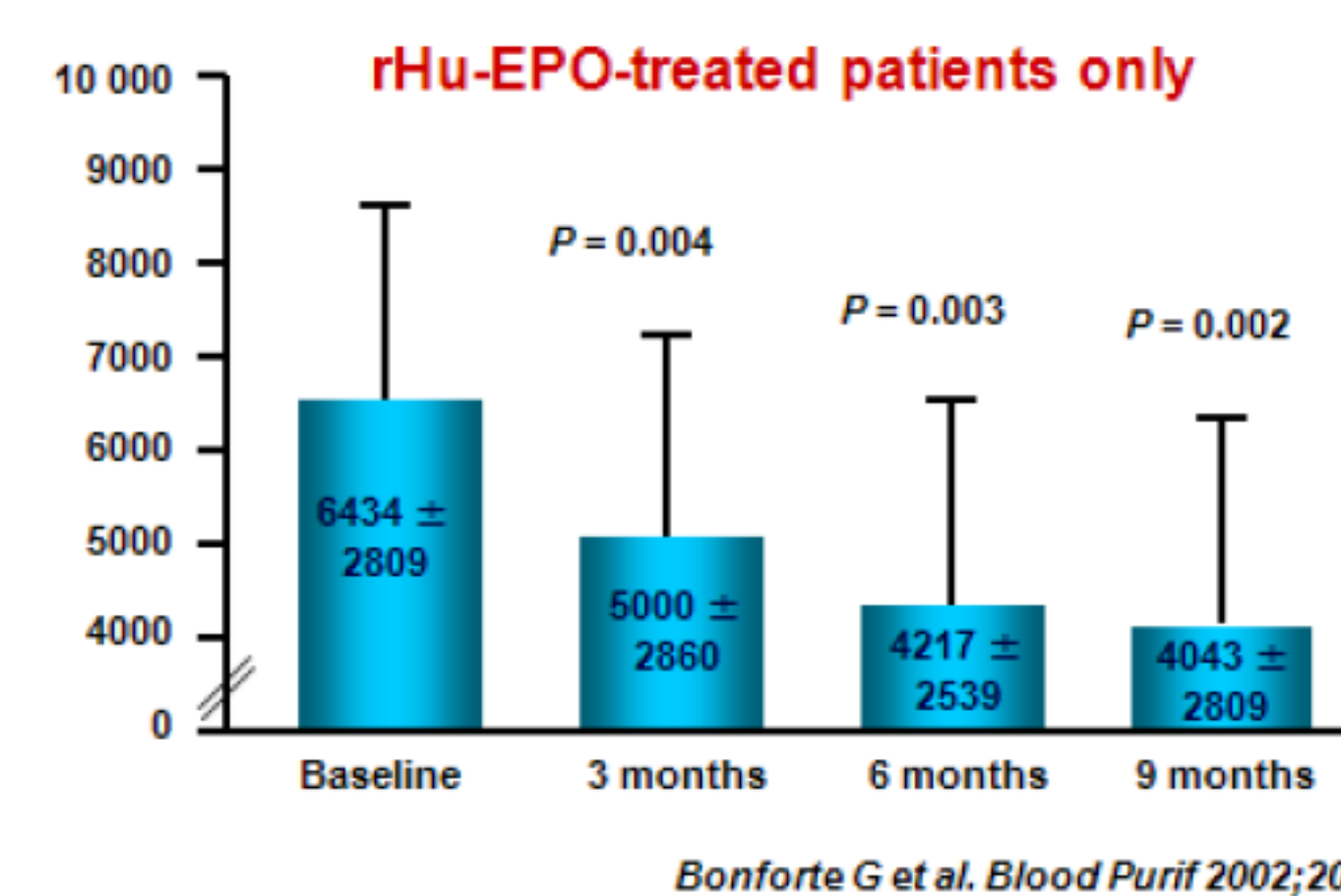
In hemodialytic (HD) patients, anaemia is associated with a reduced survival. Despite treatment with erythropoiesis-stimulating agents (ESAs), a vast majority of patients with chronic kidney disease (CKD) show resistance to this therapy and require much higher than usual doses of ESAs in order to maintain the recommended haemoglobin target (Hb). Anaemia is linked to inflammation and oxidant stress is associated to the uraemic syndrome. Recent studies demonstrated that hepcidin (HEP) may mediate ESA resistance. This peptide is increased by inflammation and has a major role in the anaemia of chronic disease. HEP levels increase also in response to iron sufficiency, decreasing intestinal iron absorption and inhibiting release of iron from stores and macrophages. Iron deficiency lowers HEP, leading to enhanced iron absorption and mobilization of iron from stores.



Low concentration of hepcidin: ferroportin molecules (Fpn) are present on cellular membrane to provide iron release.
High concentration of hepcidin: hepcidin binds and internalizes ferroportin molecules (Fpn) causing progressive reduction in iron release.



rHu-EPO supplementation at the start of online HDF and after 3, 6 and 9 months



Bonforte G et al. Blood Purif 2002;20:357-63

High- efficiency on-line hemodiafiltration (OL-HDF) has been shown to improve anaemia and to reduce the need for ESA in HD patients. This effect is associated with a reduced inflammatory state in these patients.

Tuscany multicentre study of III b phase, spontaneous, no-profit, prospective, randomized, single crossover, conducted in chronic hemodialysis patients to assess the effect of on-line hemodiafiltration (HDF on-Line) on resistance to treatment with erythropoiesis-stimulating agents (ESAs), compared to bicarbonate dialysis (BHD).

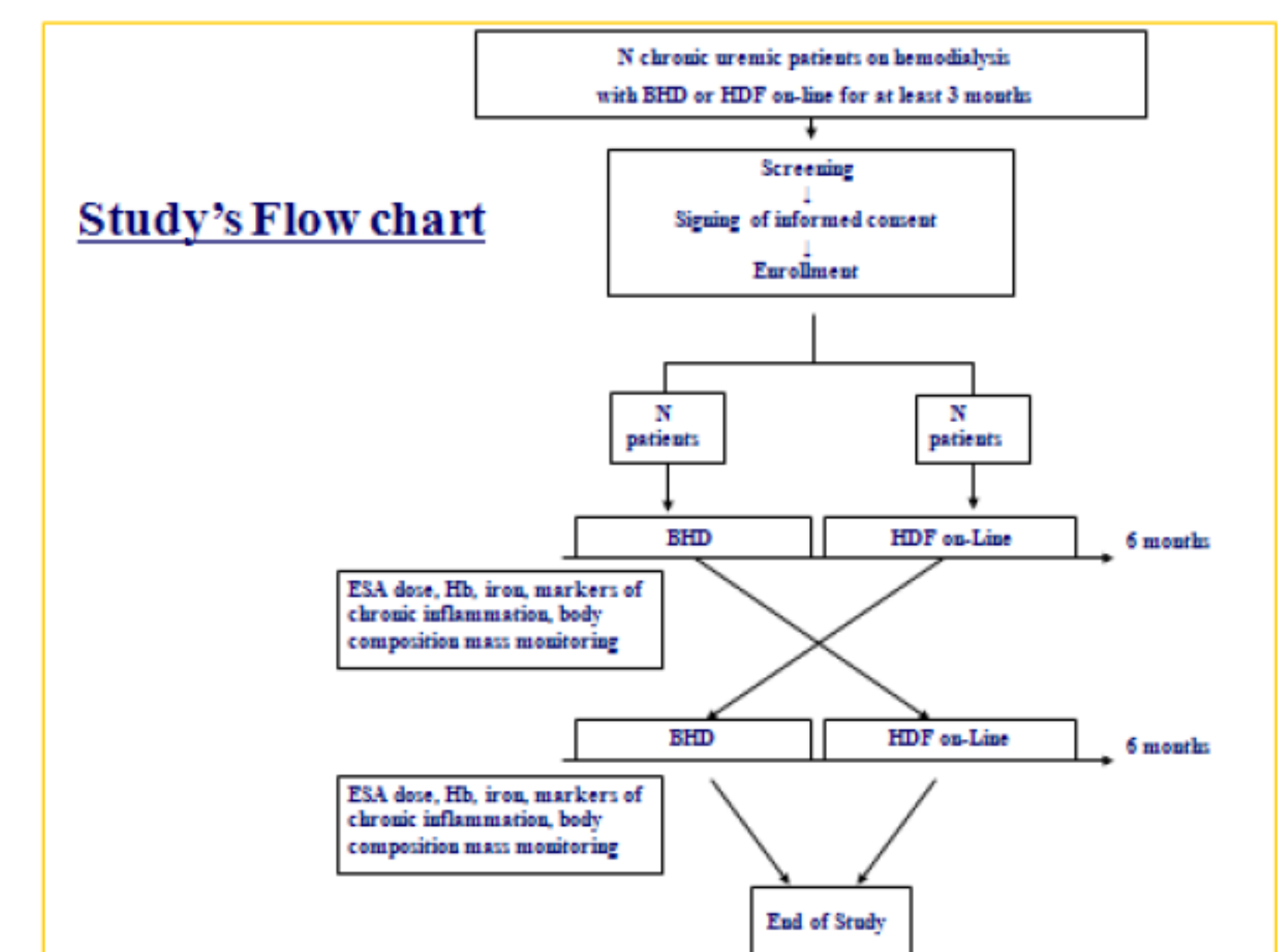
6 Participating centres
40 Patients enrolled

Resistance to therapy with rHuEPO

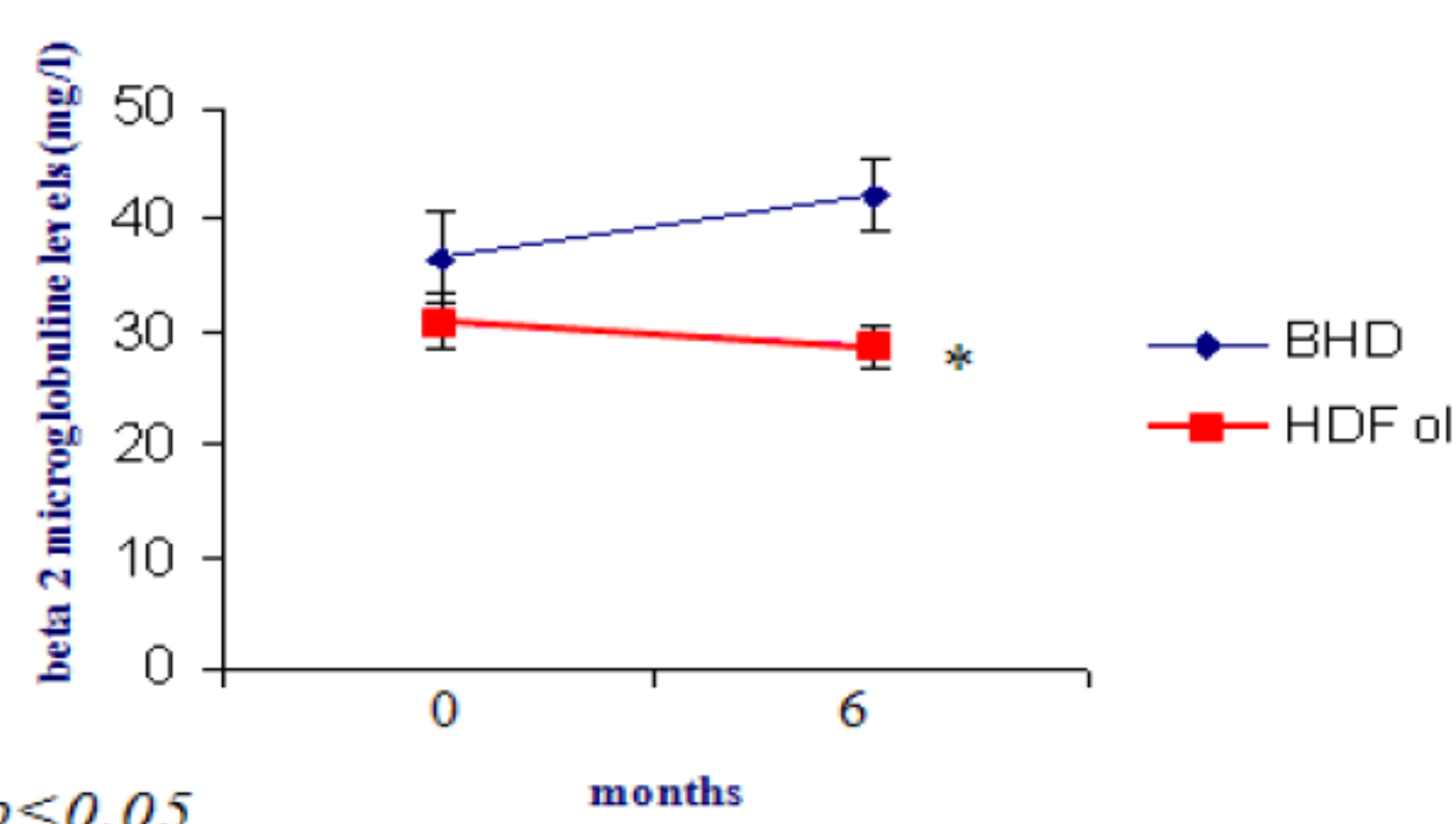
The term EPO resistance has been introduced to define the patients who fail to attain the haemoglobin (Hb) targets recommended by the international guidelines despite a higher than usual dose of erythropoiesis stimulating agent (ESA) or who continuously need this higher dose in order to maintain it.

EPO RESISTANCE INDEX

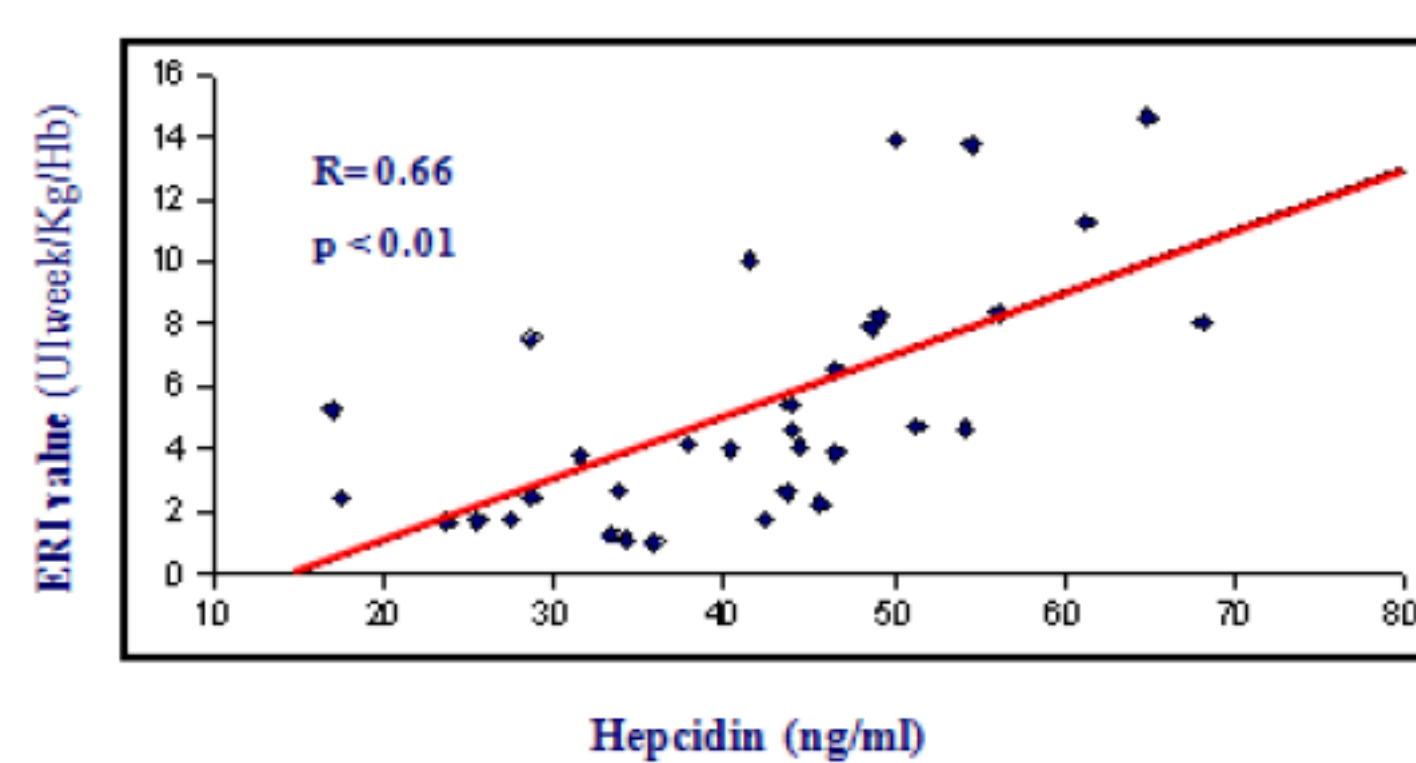
UIEpo weekly/kg/grHb



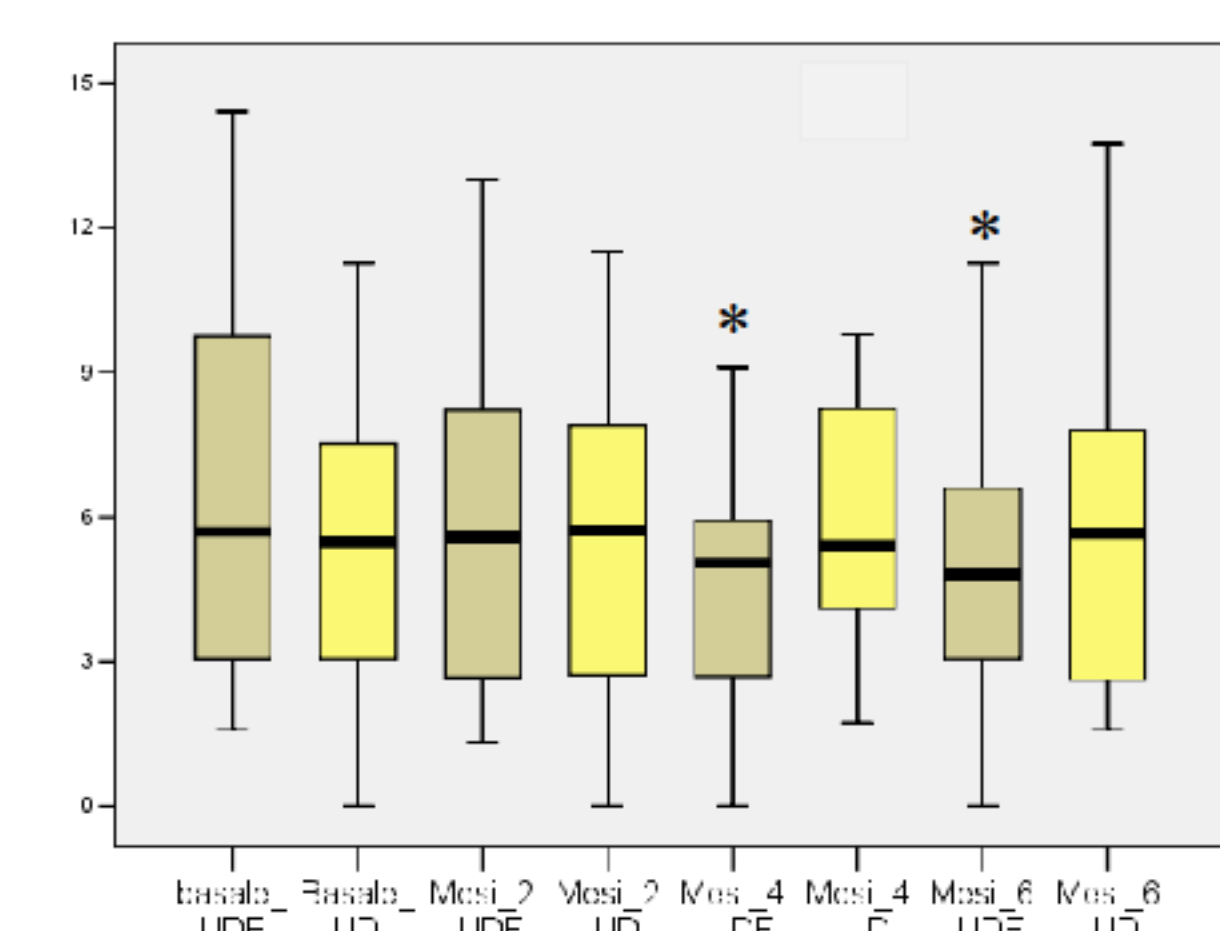
Beta 2-Microglobulin



Hepcidin and ERI correlation



ERI variations



Conclusion: a significant reduction of ERI values in patients treated with OL-HDF was observed suggesting a major efficacy of this dialytic technique in reduction of inflammatory status. Furthermore, the positive correlation between ERI and HEP supports a role for this peptide in the development of ESAs resistance in dialytic population. Finally, the lower b2M in OL-HDF confirms the higher depurative effect of this technique with respect to mid-molecules.

