# *Impact of anemia correction therapy on cardiovascular risk marker - Klotho in Chronic Kidney Disease patients*

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*OBJECTIVES:* was to evaluate the influence of anemia management on serum *Klotho* in CKD Patients

*METHODS:* The main group consisted of 80 CKD stages 3B-5D patients. All patients were observed in dynamic within 1 year. ELISA was used for serum Klotho.

*RESULTS:* ***Anemia (Hb <120 g / L) among the cohort patients with CKD at screening time was diagnosed in 75% (60 patients). (Fig.1)***

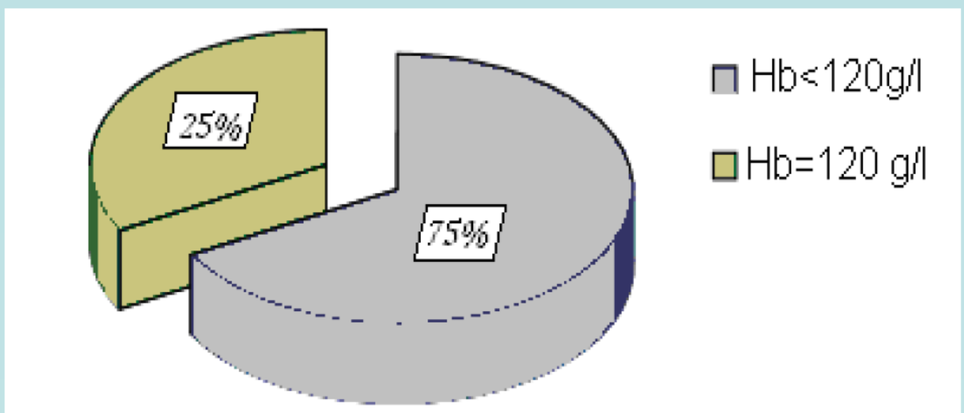



Fig.1

***To correct the anemia a short-acting erythropoiesis stimulation agents-ESA (Recormon) + iron intravenously under control of serum hemoglobin, iron, transferrin saturation% and ferritin were used initially. After a target Hb level (120 g / l) had reached (during at least 4 months), patients were switched to sustained formulations (a long-acting ESA) in order to continue maintenance therapy 1 time per month (during mean 8 months).***

***The patients who achieved and maintain target Hb level with help of ESA + iron intravenously had higher serum Klotho levels than patients who drugs to improve Hb used irregularly [p<0,01] and remained anemic (Hb <120 g / l).(Fig.2)***

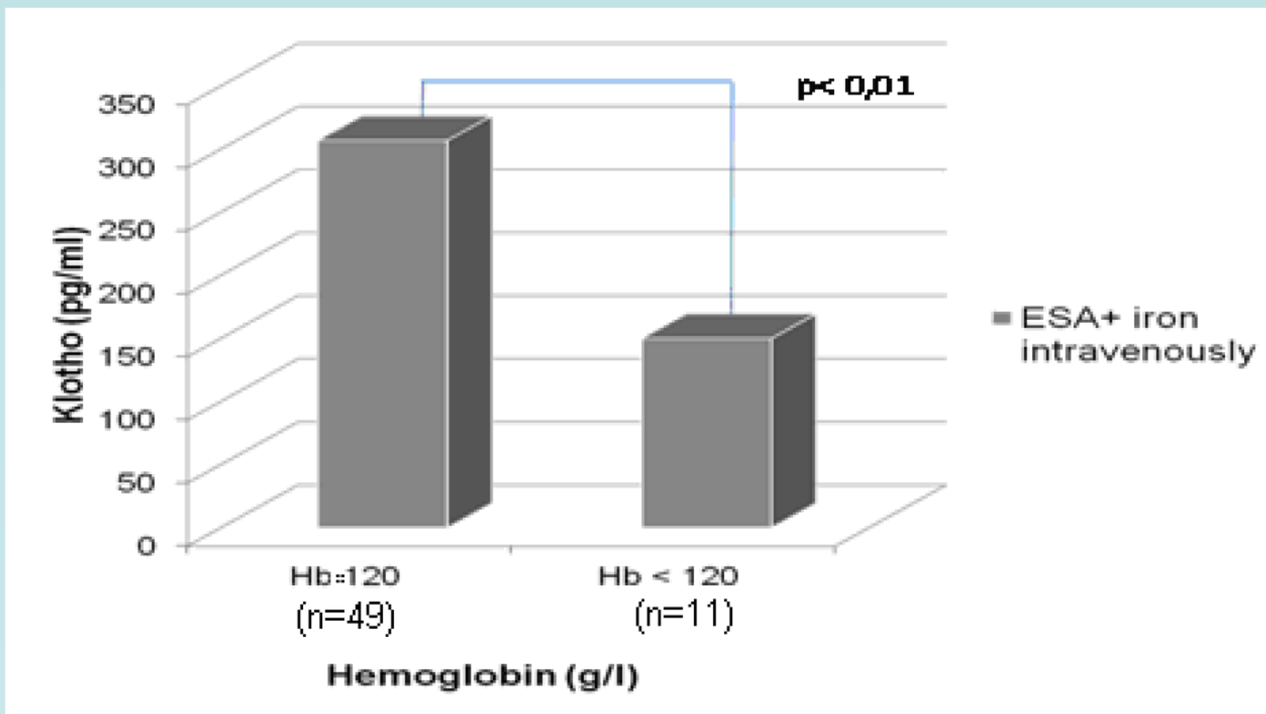
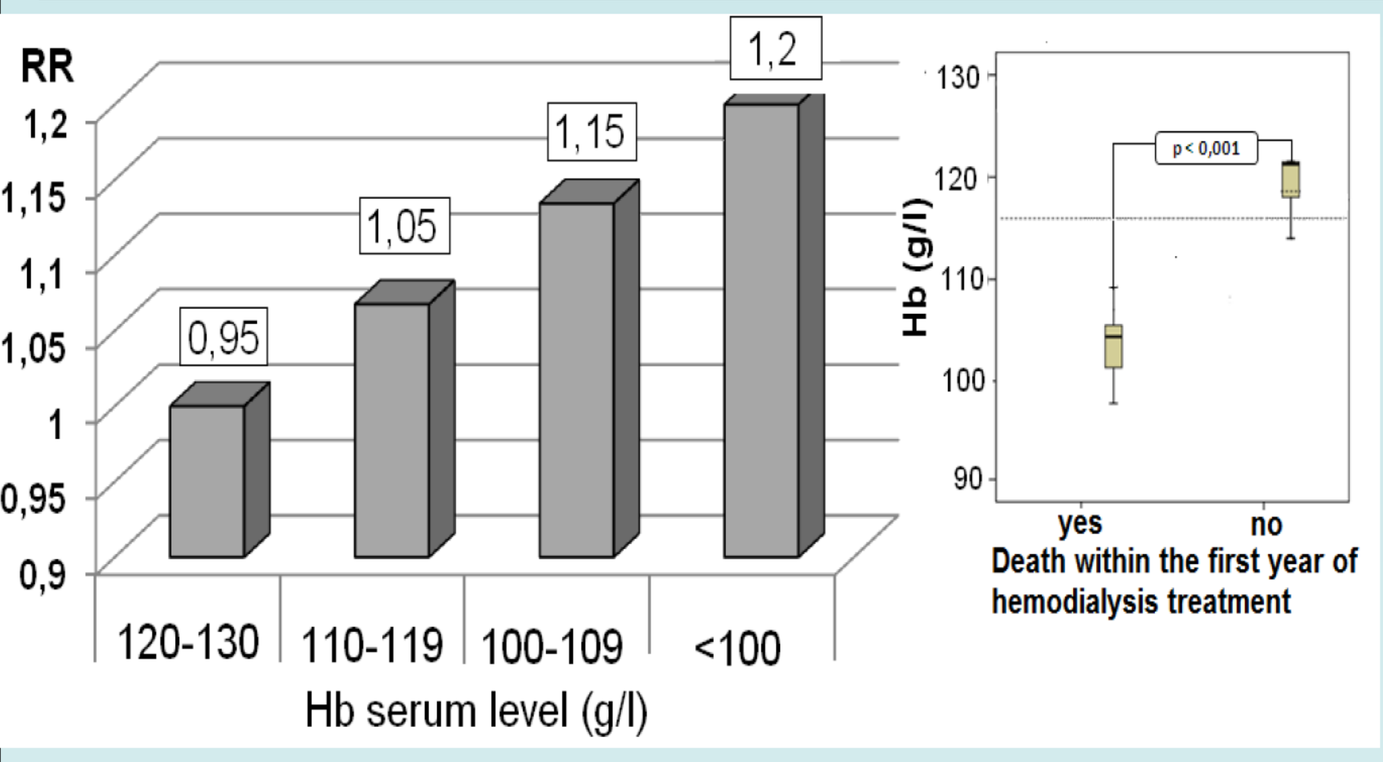



Fig.2

***At the same time it was shown that patients with corrected anemia and higher serum Klotho levels have lower cardiovascular complications risk (RR= 0,95 versus 1,20), need for hospitalization (p<0,01) and better survival during the first year of hemodialysis treatment ( p<0,01).(Fig.3,4)***



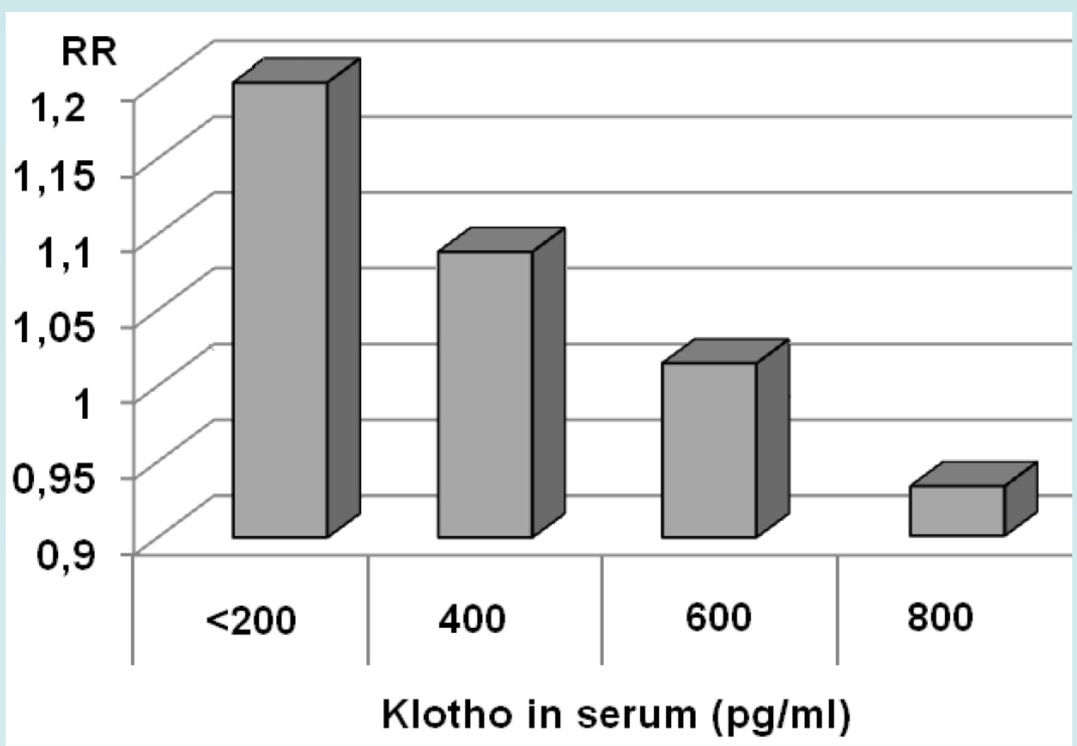




Fig.3

Fig.4

***CONCLUSION:*** **The study showed the possibility of serum Klotho practical use as an early diagnostic marker of cardiovascular risk and that adequate correction of its changes including by influencing to anemia started in predialysis CKD can reduce the risk of cardiovascular complications and increase the survival of CKD patients in general.**

***REFERENCE:*** **:. 1. Kidney Disease: Improving Global Outcomes (KDIGO) CKD-MBD Work Group. KDIGO clinical practice guideline for the diagnosis, evolution, prevention, and treatment of chronic kidney disease-mineral and bone disorder (CKD-MBD). *Kidney Int.* 2009; 76 (Suppl.113): 1-130.**

**2.** Chapter 3: Use of ESAs and other agents to treat anemia in CKD Kidney Int Suppl (2011) 2012 August; 2(4): 299–310. Published online 2012 July 31. doi: 10.1038/kisup.2012.35

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