IN TNE NAME OF GOD

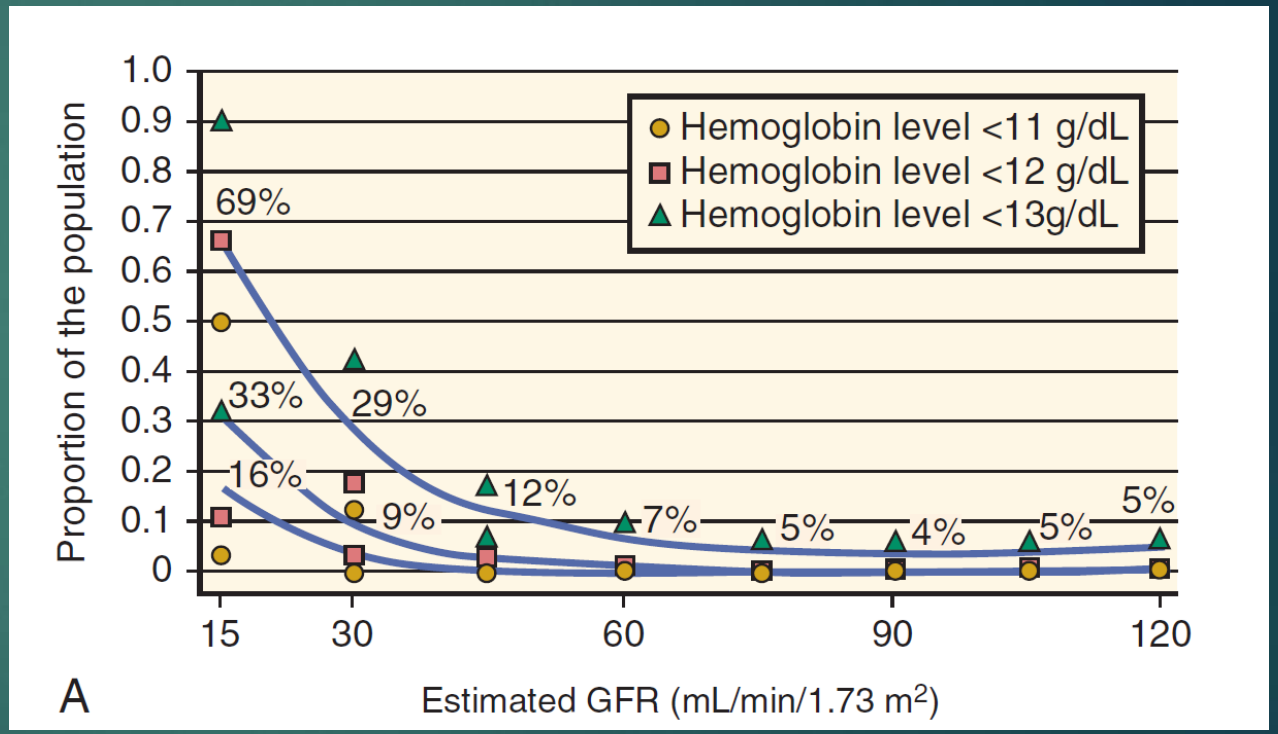
ANEMIA OF KIDNEY DISEASE

JALAL ETEMADI,
TABRIZ UNVERSITY OF MEDICAL SCIENCES,
NEPPHROLOGY DEPARTEMENT

ANEMIA OF KIDNEY DISEASE : DEFINITION AND PREVALENCE

- Anemia is common in patients with CKD and is associated with increased risk of cardiovascular events and hospitalization, progression to end-stage kidney disease, death, and decreased quality of life.

- In general, anemia is more frequent at lower levels of kidney function, becoming almost universal in those with end-stage kidney disease. The prevalence begins to increase significantly with an eGFR below 60 mL/min/1.73 m2,but anemia is generally not a frequent or severe complication of CKD until the GFR is below 30 mL/min/1.73 m2.



ANEMIA OF KIDNEY DISEASE : DEFINITION AND PREVALENCE

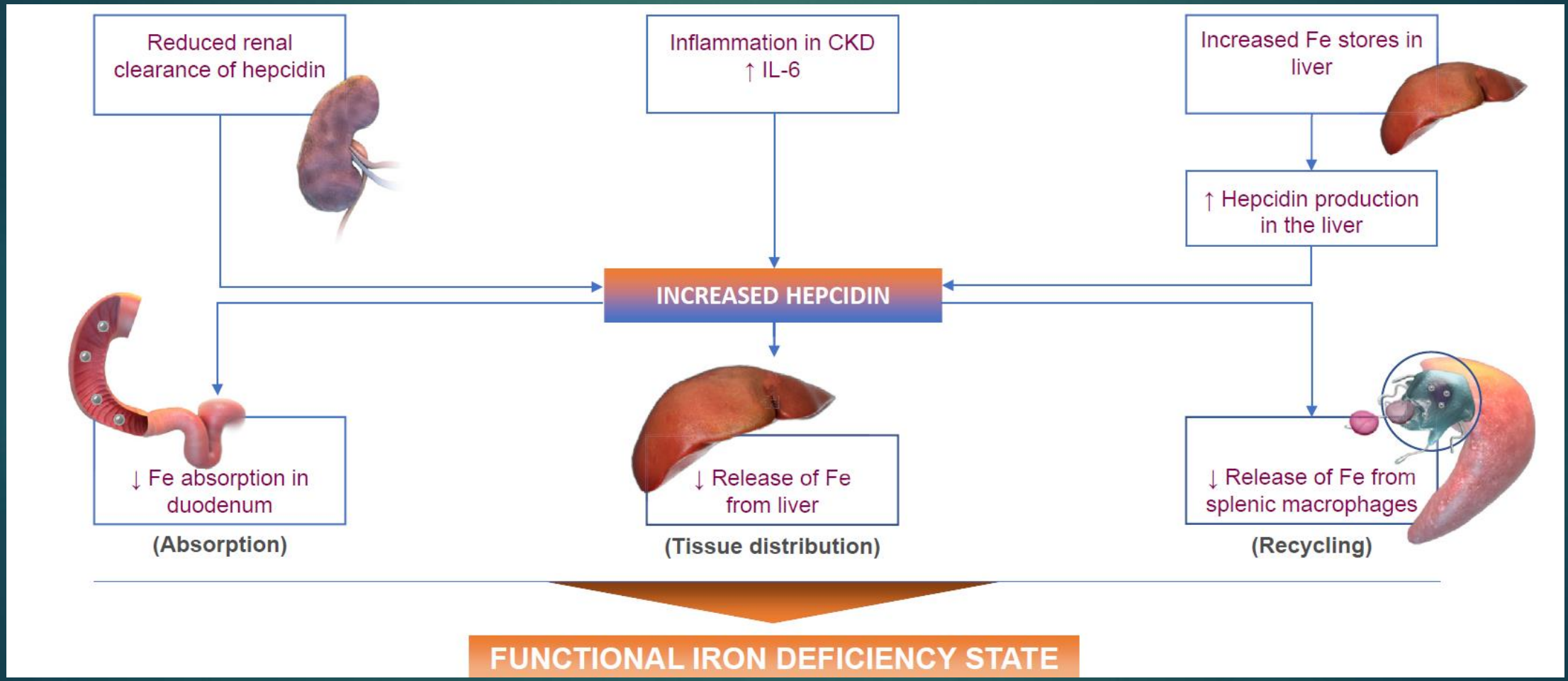
- The definition of anemia is somewhat arbitrary. The World Health Organization (WHO) defines anemia as an Hgb concentration below 13.0 g/dL for adult men and below 12.0 g/dL for adult women. This definition has been adopted in the clinical practice guideline for anemia in CKD developed by Kidney Disease: Improving Global Outcomes (KDIGO).

Anemia in CKD: Pathophysiology

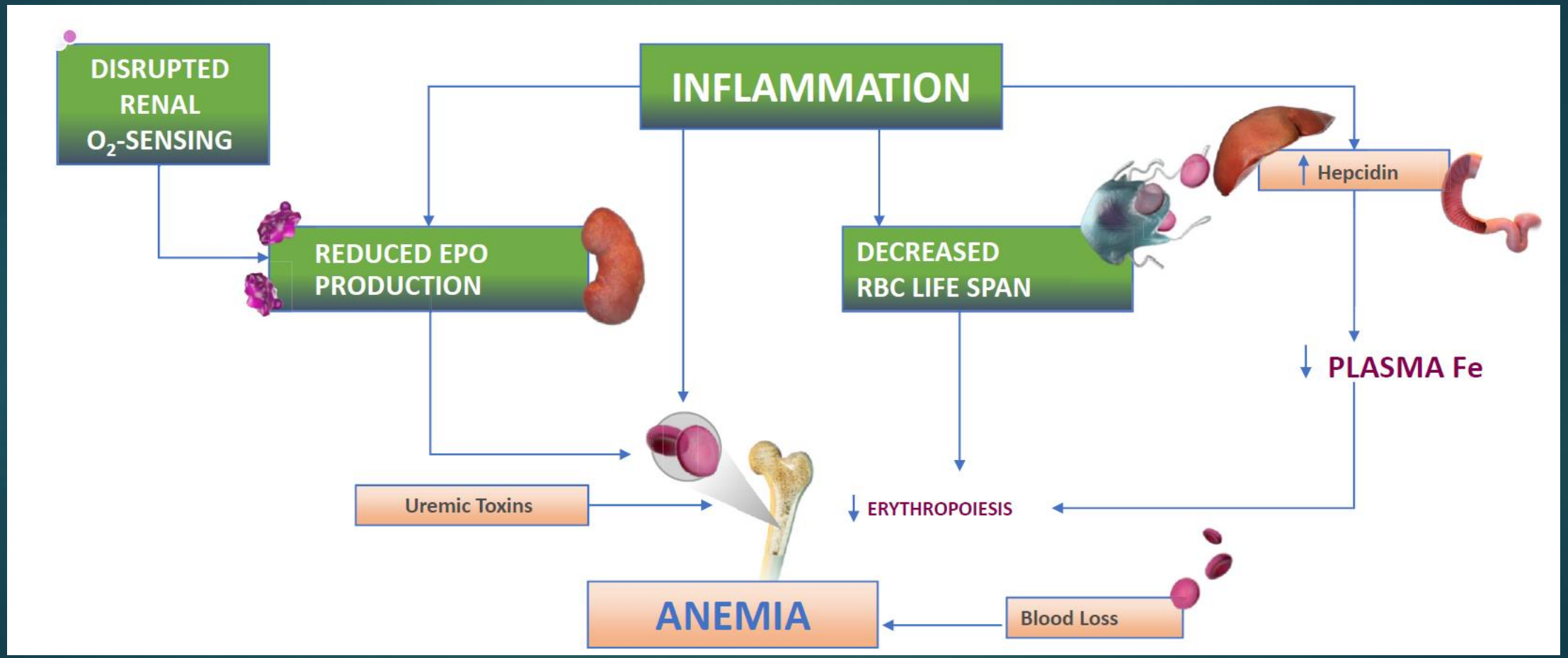
Anemia of CKD is now understood to be multifactorial in nature, including:

- decreased EPO production,
- iron deficiency,
- inflammation,
- blood loss,
- and reduced RBC survival.

Pathophysiology: Hepcidin pathway. a peptide produced in the liver, was discovered in 2000 and is the key regulator of iron use, recycling, and transport.



Pathophysiology of anemia in chronic kidney disease.

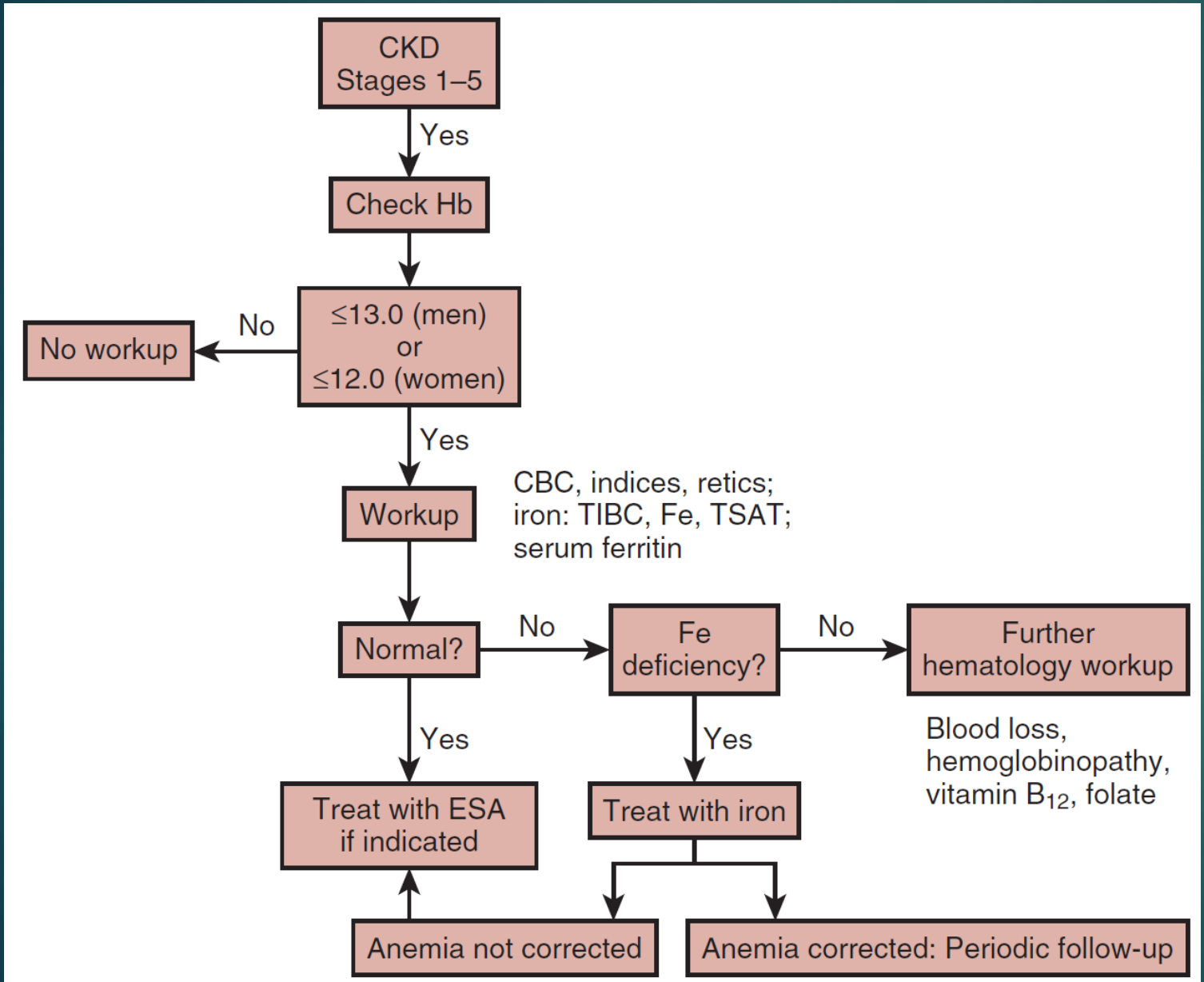


Anemia in CKD: New Approaches to Treatment

- Hypoxia-inducible factor stabilizers
- Hepcidin Modulators

Variable	Daprodustat	Desidustat	Enarodustat	Molidusat	Roxadustat	Vadadustat
Investigational designation	GSK1278863	ZYAN1	JTZ-951	BAY 85-3934	FG-4592 ASP1517 AZD9941	AKB-6548 MT-6548
PHD isoform specificity	PHD2 > PHD1 > PHD3	Not reported	PHD3 > PHD2 > PHD1	PHD2>PHD1>PHD3	PHD1 > PHD3 > PHD2	PHD2 > PHD1 > PHD3
Effective half-life (h)	2.25	7.0–11.4	8.96	4–10	12–15	4.9–9.1
Dosing interval	Daily	Daily	Daily	Daily	3 times weekly	Daily

Evaluation of the patient with CKD and anemia



Lankhorst CE, Wish JB. Anemia in renal disease: diagnosis and managem
2010;24:39–47