

I'm not a robot!



Treatment of Iron Deficiency Anemia		
Treatment	Potential Benefits	Potential Risks
IV iron <sup>a</sup>	<ul style="list-style-type: none"> <li>Improve hemoglobin levels</li> <li>Reduce dosing requirements for ESAs</li> <li>Increase in plasma non-transferrin-bound iron</li> </ul>	<ul style="list-style-type: none"> <li>Accumulation in tissue</li> <li>Transient increase in oxidative stress (?)</li> <li>Risk for infection (?)</li> <li>Increase in plasma non-transferrin-bound iron</li> </ul>
EPO-stimulating agents <sup>b</sup>	<ul style="list-style-type: none"> <li>Decrease need for red blood cell transfusions</li> <li>Improvement in quality of life</li> </ul>	<ul style="list-style-type: none"> <li>Cardiovascular events</li> <li>Stroke</li> <li>Vascular thrombosis</li> <li>Hypertension</li> </ul>

<sup>a</sup> Fishbane S, et al. *Nephrol Dial Transplant*. 2014;29:255-259.<sup>b</sup> Palmer SC, et al. *Ann Intern Med*. 2010;153:23-33.



#### Treatment of 1<sup>o</sup> Hyperparathyroidism

- Surgery – remove the diseased Parathyroid gland and leave the normal glands.

One bad gland is removed – 95%

3 or 3 1/2 glands are removed – 5%



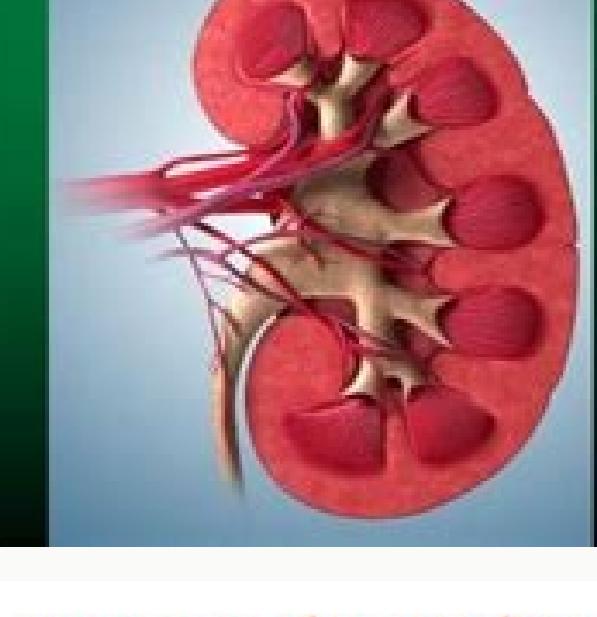
The Standard Operation requires a large incision often as big as 8 inches.

## Pathophysiology of uremia

✓ Diminished excretion of electrolytes and water,

✓ Reduced excretion of organic solutes,

✓ Decreased hormone production



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a. Fishbane S, et al. *Nephrol Dial Transplant*. 2014;29:255-259.<sup>b</sup> Palmer SC, et al. *Ann Intern Med*. 2010;153:23-33.

Iron deficiency anemia and ckd coding guidelines. Anemia in ckd coding guidelines. Nkf guidelines for anemia of chronic kidney disease.

Prevalence of anemia in chronic kidney disease in the United States. *PLoS One*. 2014; 9:e84943View in Article Scopus (182) PubMed Crossref Google ScholarPrevalence, treatment patterns, and healthcare resource utilization in Medicare and commercially insured non-dialysis-dependent chronic kidney disease patients with and without anemia in the United States. *BMC Nephrol*. 2018; 19: 67View in Article Scopus (11) PubMed Crossref Google ScholarThe prevalence and management of anemia in chronic kidney disease patients: result from the Korean Cohort Study for Outcomes in Patients With Chronic Kidney Disease (KNOW-CKD). *J Korean Med Sci*. 2017; 32: 249-256View in Article Scopus (23) PubMed Crossref Google ScholarBurden of anemia in chronic kidney disease patients in Japan: a literature review. *Ther Apher Dial*. 2018; 22: 444-456View in Article Scopus (18) PubMed Crossref Google ScholarAssessment of iron status in predialysis chronic kidney disease patients in a Nigerian Tertiary Hospital. *Saudi J Kidney Dis Transpl*. 2018; 29: 1431-1440View in Article Scopus (1) PubMed Crossref Google ScholarAssociation of different iron deficiency cutoffs with adverse outcomes in chronic kidney disease. *BMC Nephrol*. 2018; 19: 225View in Article Scopus (6) PubMed Crossref Google ScholarAnemia is a risk factor for all-cause mortality: obscure synergic effect of chronic kidney disease. *Clin Exp Nephrol*. 2018; 22: 388-394View in Article Scopus (14) PubMed Crossref Google ScholarCross-sectional survey in CKD patients across Europe describing the association between quality of life and anaemia. *BMC Nephrol*. 2016; 17: 97View in Article Scopus (31) PubMed Crossref Google ScholarImpact of correction of anemia in end-stage renal disease patients on cerebral circulation and cognitive functions. *Saudi J Kidney Dis Transpl*. 2018; 29: 1333-1341View in Article Scopus (1) PubMed Crossref Google ScholarPosttransplant anemia as a prognostic factor of mortality in kidney-transplant recipients. *BMC Res Notes*. 2017; 10: 240View in Article Low-normal hemoglobin levels and anemia are associated with increased risk of end-stage renal disease in general populations: a prospective cohort study. *PLoS One*. 2019; 14:e0215920View in Article Scopus (6) PubMed Crossref Google Scholariron deficiency, anemia, and mortality in renal transplant recipients. *Transplant Int*. 2016; 29: 1176-1183View in Article Scopus (14) PubMed Crossref Google ScholarThe multifaceted role of iron in renal health and disease. *Nat Rev Nephrol*. 2020; 16: 77-98View in Article Scopus (27) PubMed Crossref Google ScholarKDIGO clinical practice guideline for anemia in chronic kidney disease. *Am J Kidney Dis Suppl*. 2012; 2: 279-335A trial of darbeopetin alfa in type 2 diabetes and chronic kidney disease. *N Engl J Med*. 2009; 361: 2019-2032View in Article Scopus (1468) PubMed Crossref Google ScholarNormalization of hemoglobin level in patients with chronic kidney disease and anemia. *N Engl J Med*. 2006; 355: 2065-2088View in Article Scopus (2088) PubMed Crossref Google ScholarThe effects of epoetin alfa compared with low-dose iron therapy on cardiovascular disease in hemodialysis and epoetin alfa and iron therapy in hemodialysis patients: a meta-analysis. *Am J Kidney Dis*. 2019; 188: 223-230View in Article Scopus (2) PubMed Crossref Google ScholarTreatment in hemodialysis and erythropoietin stimulation and iron therapy. 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