



Interpretation of Urinary Sediment Abnormalities in Patients with Chronic Kidney Disease

Predominant Urinalysis Abnormality								Associated Kidney Disease	
RBC	RBC Casts*	WBC	WBC Casts	Tubular Cells	Cellular Casts	Granular Casts	Fat†		Total Protein-to-Creatinine Ratio‡
+	+								Proliferative glomerulonephritis or hereditary nephritis
+	-			+		+			Hereditary nephritis or disease of small vessels (microangiopathy)
+	-			-		-			Cystic kidney disease, kidney neoplasms, or urinary tract lesions other than kidney disease
±	-	+	+					200-1000 mg/g	Tubulointestinal nephritis
			+	-				<200 mg/g	Urinary tract lesions other than kidney disease
				+	+	+			May be present in all types of kidney disease, but most abundant in acute tubular necrosis (the most common kidney disease causing acute kidney failure)
-	-						+	>1000 mg/g	Diabetic kidney disease and noninflammatory glomerular diseases
-	-	-	-	-	-	-	-	200-1000 mg/g	Noninflammatory glomerular disease, noninflammatory tubulointerstitial disease, or diseases affecting medium-sized arteries

* Detection of red blood cell casts requires careful preparation and thorough and repeated examination of sediment from freshly obtained urine specimens. Even under ideal conditions, red blood cell casts may not always be detected in patients with proliferative glomerulonephritis.

† Oval fat bodies, fatty casts, free fat

‡ Cut-off values are not precise.

+ = abnormality present; - = abnormality not present; ± = abnormality may or may not be present.

K/DOQI = Kidney/Disease Outcomes Quality Initiative; RBC = red blood cell (erythrocyte); WBC = white blood cell (leukocyte).

Reprinted from the K/DOQI Clinical Practice Guidelines for Chronic Kidney Disease: Evaluation, Classification, and Stratification.

Table from *Physicians Information and Education Resource (PIER)*, Chronic Kidney Disease module.