

Objectives

- To address abnormal urine constituents.
- To define renal plasma threshold.
- To understand the different terminology associated with urine volume (for diagnostics and monitoring).
- To tie in urinary function with electrolytes.

Homework for next class

Urinary Case Study

- Page 33 – 34
- Do not need to do Concept Map though.

Turn in upon entry into quiz.

Abnormal Constituents of Urine

- Albumin – *Albuminuria*
- Glucose – *Glucosuria*
- Erythrocytes – *hematuria*
- Leukocytes – *Pyuria*
- Ketones – *Acetonuria*
- Proteins – *proteinuria*

BUN – Blood urea nitrogen

- Blood Urea Nitrogen – measured in serum.
- Normal value 2.5-9.3 mmol/L or 6-8 g/dl
- Indication of kidney function
- High values: indication of urinary obstruction, dehydration, MI, heart failure.
- Low values: liver failure, impaired protein absorption, pregnancy.

Bilirubin

- The yellowish pigment in bile.
- Results from break down of RBC's in the liver & spleen.
- High levels of urobilinogen (bilirubin in the urine) can be early indication of jaundice (liver issues).
- >>>> Bilirubinuria – Bilirubin in the urine.

Renal Plasma Threshold

- Value that indicates a concentration level of molecules - those that pass through the nephron tubule.
- This addresses the reabsorption potential OR the amount of molecules that the tubule can transport back into the blood.

Monitoring Urine

In the case of glycosuria
Glucose will appear in the urine.
RPT = 300 mg/100 ml (of plasma)

In excess of this value → Hyperglycemia

Testing urine for glucose is an easier way
to consistently monitor for hyperglycemia.

Excessive limits

Polyuria – excessive amounts of urine.
Oliguria – scanty urine output.
Dysuria – Painful urination

Uremia* – toxic levels of urea in the blood.

* Monitored via the blood (BUN)

Blood urea nitrogen level.

Occurs when glomerular filtration compromised

Kidney Failure

Loss of kidney function.

Causes: infectious diseases, BV depletion, fluid
volume shifts and many other reasons.

> Ultimately loss of function is due to an
imbalance in **electrolytes**.

In the case of excessive K⁺ ions

- Interferes with heartbeat
- Can cause heart failure.