AL-Mustaqbal University College Medical laboratory Techniques Department

Practical Clinical Chemistry (Lecture 2)

Determination of serum Urea

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Urea : is a natural waste product produced by the human body after eating. The liver breaks down the protein in the food, producing urea, and then releases it into the bloodstream. Thus, this substance ends up in the kidneys, which in turn work to eliminate it through the urine, leaving behind low amounts or levels of it in the blood.

*NO.Exp: 2

*Name of Exp:Determination of Serum Urea

*Purpouse of Exp:To estimate the level of urea in the blood.

*Equipment and tools: 1- Spectrophotometer 2-Urea kit

3- Centrifuges

4- Water bath

5- Micropipettes

 6- Tubes, cuvettes, tourniquet, syringes ,cotton, plain, tubes, yellow and blue tips

*Procedure

SOLUTION	BLANK	STANDARD	SAMPLE
Working Reagent	1ml	1ml	1ml
Standard	………..	10µl	…………
Sample	…………	…………	10µl

Mix and incubate for 5 minutes at 37°C and for 10 minutes at 20-25°C

R3(ALK)	1ml	1ml	1ml

Measure absorbance of sample (Abs. sample) and standard (Abs. standard) against reagent blank.

*Reagent 1 (R1 Enzyme): Urease.

*Reagent 2 :(R2 Buffer) (Phosphate buffer pH 8.0, Sodium salicylate, Sodium nitroprusside, EDTA .

*Reagent3 (R3 Alkaline Reagent): Sodium hydroxide, Sodium hypochlorite

Calculations:-

Con.of test =(Abs.of test/Abs. of standard) *100 mg/dL

The normal range Urea is:

Newborns: 6.4-53.5mg/dl

Adults(12-60 years): 15-40 mg/dl

Adults > 60 years:17-50 mg/dl, and the concentration tend to be slightly higher in male than in female

Disscustion and Conclusion:
*Hyper uremia:

1- High level of protein in the body.

2- Kidney problems or failure.

3- Mechanical obstruction to urine excretion, such as may occur in diseases of the ureters or urethra.The obstruction may be caused by stones, or tumor.

4- heart failure.

*Hypo uremia

1. Liver disease.

2. Malnutrition

3. Pregnancy

4.Low levels of protein in the diet.

GOOD LUCK