

Urinary Protein in Healthy Subjects

Pages with reference to book, From 309 To 310

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Abstract

Urinary protein was determined in 200 healthy males and females of various age groups representing various socio-economic status. Urinary protein excretion was higher in males than females in all age groups and the concentration in children and adults was the same (JPMA 35 : 309, 1985).

Introduction

Urinary protein excretion is a standard measurement in diagnosis of patients with renal diseases. Normal urine contains a small amount of protein as the normal glomerulus bars the passage of albumin and larger molecular weight plasma proteins from plasma to the glomerular filtrate.¹ Excretion of more than 150mg/day is the result of increased glomerular filtration of protein caused by glomerular damage^{2,3} However healthy newborn infants may have higher level of urinary protein during the first three days of life⁴.

Hitherto no attempts have been made to measure protein excretion per day in healthy subjects of both sexes in Pakistan which this study hopes to redress.

Material and Methods

Urinary protein was determined on 24 hours urine sample in two hundred healthy males and females of various age groups by turbidimetric method⁵.

The age and sex distribution is shown in the accompanying figure.

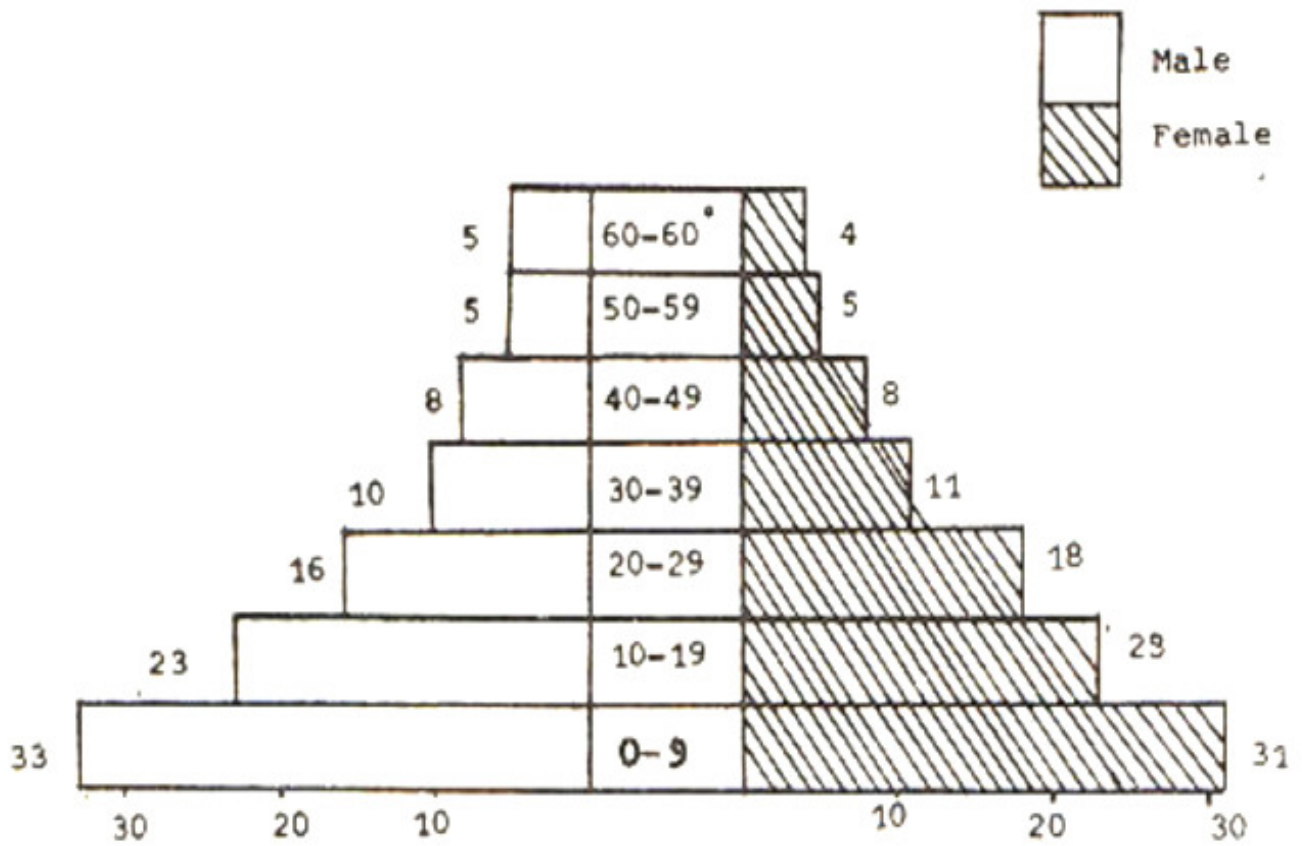


Fig. Age and Sex distribution.

Results

Table
Urinary Protein (mg /12 hrs) in Healthy Subjects.

Groups years	Male	Female
	Mean \pm S.E. (Range)	Mean \pm S.E. (Range)
0-9	82.9 \pm 4.11 (40-130)	70.77 \pm 4.9 (29-124)
10-19	92.1 \pm 6.59 (30-146)	73.95 \pm 6.38 (32-140)
20-29	95.5 \pm 6.77 (40-140)	77 \pm 6.47 (36-130)
30-39	98.8 \pm 6.5 (67-140)	89.8 \pm 9.6 (44-132)
40-49	89.6 \pm 10.9 (36-130)	81.37 \pm 13.57 (32-135)
50-59	84.4 \pm 13.86 (32-125)	63.2 \pm 7.13 (40-80)
60-60	101.2 \pm 16.86 (40-136)	58 \pm 10 (30-84)

Table shows the urinary protein excretion in males and females of various age groups. Males had increased urinary excretion than females in all the age groups studied.

Discussion

The basement membrane of the glomeruli behave as ultra filter and probably have structures some what similar to sheets of conjugated dextran gel, they exclude proteins of molecular masses greater than 100,000 daltons but allow the passage of low molecular mass protein down to about 30,000. They are freely permeable to smaller molecules of proteins. However, a very small proportion of the proteins filtered are excreted in the urine. Most are reabsorbed and broken down by the cells lining the tubules, so that normal urine contains very little plasma protein. It contains small quantities of proteins of renal origin of which the mucoprotein is the most abundant.⁶

In the present series, urinary protein excretion was 30-146mg/24hrs with a mean value of 90 mg/24 hrs in healthy males and 29-140mg/ 24hrs with a mean value of 74.8 mg/day in females of various age groups. Males have raised concentration of urinary protein than females^{7,8} as shown in this study. There was no difference in the excretory pattern between adults and children.

References

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