# Bacteriuria in Lahore's School Girls A Preliminary Study

Pages with reference to book, From 233 To 234

Farakh A. Khan ( Dept. of Surgery, Postgraduate Medical Institute, Mayo Hospital, Lahore. )
Nasreen Akhter, Salman H Siddiqi ( T.B. Research Unit, Pakistan Medical Research Council, Mayo Hospital, Lahore. )

## Abstract

Two hundred and twenty-four urine samples were collected from two schools (One hundred and sixteen from high privileged schools and one hundred and eight from low privileged schools) to determine the prevalence of bacteriuria in Lahore's school girls.
Only three specimens (2.6%) from high privileged school revealed bacteriuria (more than 105 bacteria/ml of urine). Two samples isolated pseudomonas and one gram positive diplococci.
Four specimens (3.7%) from low privileged school revealed bacteriuria. E. Coli was isolated in three and gram positive diplococci in one specimen. Pyuria was seen in one sample only.
The difference in the prevalence rate of bacteriuria in two schools is not much but is certainly higher than 1.2% reported from U.S.A. (JPMA 31:233, 1981).

## Introduction

Pakistan has a disproportionately high school age population. School girls seem to be more prone to bacteriuria and its complications. It is estimated that the prevalence rate of bacteriu ria in school age boys is 0.03 per cent as compared to 1 to 2 per cent in girls. It is estimated that 5 to 6 per cent of school girls will suffer from at least one episode of UTI during their school days (an incidence of 0.4 per cent per year). Eighty per cent of the bacteriuric girls will have recurrence although only a very small percentage will finally end up with severe renal damage requiring support (Kunin 1970). These are staggering figures for Pakistan and require attention. The cost of routine screening of school girls would be prohibitive.
The present study was designed to assess the prevalence of bacteriuria in school girls between the ages of 2-10 years in Lahore and to obtain comparative figures from a privileged and under privileged school.

## Material and Methods

Sterile wide mouth glass containers with caps were prepared in our laboratory. A team of nurses and the authors, with prior permission of the principal/head mistress, visited the school during midday school break.
Girls from two schools were included in this study. Convent of Jesus and Mary School, Lahore-a high income elite institution and Municipal Corporation Girls School-a school for the poor, were selected for this study. The parents' prior permission was obtained. Voluntary nursing staff supervised mid stream urine collection.
Random sample collection was achieved by taking the first twenty students in the prepratory to the IV class (There were about 80 girls in each class). In case of drop out, the next girl was included in the study.
The age range of the sample was between 4 to 10 years. The target was to include at least 20 girls from each class (total minimum sample of 100 girls).
The daily urine samples were immediately transferrd to the laboratory and cultured by Dilution-Pour Plate method (Kunin, 1979). Part of the uncentrifuged sample was submitted to microscopy and cell

count was done in the counting chamber. Bacterial counts of more than 105 per ml of urine was taken as positive. Urine WBC count of more than 10 per cu mm were taken as pyuria.
Positive cultures were reported to the Principal/Head Mistress of the school concerned.

## Results

***Convent of Jesus and Mary School (CfM)***
A total of 116 samples were collected over a period of six days. Of these 10 samples were sterile and 3 grew more than 10s bacteria per ml. of uline (2.6%). Three samples were contaminated.
The type of bacteria isolated from the three positive samples were pseudomonas aeroginosa in two and gram positive diplococci (5 x 105 bacteria/ml urine) in one. None of these girls showed pyuria on microscopy.
Urine microscopy showed pyuria in only one girl (20-25 WBC/cu mm). Her urine was sterile. There were 4 specimens with 6-10 WBC/ cu mm with sterile urine.
**Municipal Corporation Girls School (MCG)**
A total of 108 samples were collected of which 94 were sterile. Two samples were contaminated. Of the 12 culture positive cases only 4 gave significant growth (3.7%).
Of the 4 culture positive samples 3 grew Escherichia coli and one gram positive Diplococci. Except for one sample, urine microscopy did not show pyuria.
Crystaluria was significantly higher in this school population as compared to CMJ school.

## Discussion

Asymptomatic bacteriuria (ABU) in women and children is an established entity (Kunin, 1979). The high prevalence rate of UTI in school girls has generated a lot of interest in this field. Unfortunately we do not have comparative figures from Pakistan.
The present study of two schools in Lahore is a preliminary work for the future since the population selected was small (224 subjects selected at random). To establish the diagnosis of significant bacteriuria three consecutive samples from the suspected cases must be tested, of which at least two must have bacterial counts of more than 105 per ml. of urine (Kunin, 1970). This was not possible in our preliminary work.
This study has shown a prevalence rate of 2.6 percent in the privileged and 3.7 percent in the under previleged schools. The difference is not significant but is higher than the 1.2 percent average reported from U.S.A. (Kunin, 1979). This may be because our results are based on single sample analysis. These figures do show that personal hygiene, diet and environmental factors may not be significant, and further studies are required in this direction.
There was a marked difference between the type of organisms isolated from the two populations. The privileged school positive cases were mainly pseudomonas aeroginosa which is an uncommon organism in the urinary tract. E. coli predominated in the under previleged positive cases which is more in line with the reported data (Kunin, 1970).
This study has also confirmed the lack of correlation between pyuria and significant bacteriuria. This is unfortunate for a poor community like Pakistan where the average patient cannot afford expensive investigative techniques.
The study of symptomatic bacteriuria over the years has been shown to be more complicated than realised originally. The problem of recurrent infection in 80 per cent of cases needs to be assessed. The role of faecal E. Coli in recurrent infection is still poorly understood (Lidin-Janson and Lindberg, 1977). The whole concept of management is constantly under review in the light of long term follow-up.

From this study it seems that prevalence of bacteriuria (symptomic or asymptomatic) in school girls is the same as reported from Europe and N. America. To locate the affected girls from the school age population, we need to introduce one of the rapid methods of detection of significant bacteriuria. For this, the dipsticks are ideal if they can be manufactured in Pakistan. However, these population surveys are of benefit if the positive cases can be assured full uro-logical facilities. The later, unfortunately, is not available in Pakistan.

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