Does Pyuria Predict (lrinary Tract Infection

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The term urinary tract infection (UTI) is applied to a wide variety of clinical conditions, ranging from asymptomatic bacteriuria on the one hand to acute pyelonephritis with gram- negative septicemia on the other. Consequently, a number of sub- divisions have been designated: symptomatic and asymptomatic, complicated and uncomplicated, among others. However, these schemes frequently overlap. To understand how pyuria does ordoes not predict UTI, one first needs to review the diagnostic standards for a UTI. Quantitative urine cultures and specific identification of the organisms in urine are used to distinguish culture contaminants from true infective agents[1]. The urine bacterial concentration is usually determined by inoculating a culture dish with a known volume of urine (l0\'^{2} or 10\'^{3} ml)[2]. The finding of more than 10^5 bacteria per milliliter of voided urine was shown to differentiate infected from contaminated urine of women with asymptomatic bacteriuria or acute pyelonephritis[3]. Since the publication of these studies, many physicians have considered atleast 10^5 colony-fomiing units (CFU) per milliliter to be a necessary criterion for the diagnosis of any urinary infection. However, about a third of women with acute cystitis caused by E. coli, S. saprophyticus and Proteus s ies have colony counts in midstream urine between 10^2 and 10^4 CFU/ml[4,5]. Similarly, acute pyelonephritis has been reported in association with low bacterial counts in voided urine[6]. Thus, in acutely symptomatic women, a more appropriate threshold value for defining significant bacteriuria is more than 10^2 CFU/ml of a known uropathogen[4,5]. For UTI in men and acute uncomplicated pyelonephritis, a threshold value of more than 10^4-CFU/ml and for asymptomatic bacteriuria, a threshold value of more than 10^5 CFU/mi are recon1mended[7].

Rapid tests for detecting urinary leukocytes pemtit presumptive confirmation of UTI at the time of initial evaluation without the expense and delays associated with urine culture. Among women with acute uncomplicated infection, when pyuria in voided urine specimens is carefully assessed using the hemocytometer method and when UTI is defined as more than 10^2 CFU/rnl of a unopathogen plus acute urinary tract symptoms, pyuria is a highly sensitive indicator of UTI[8]. In fact, its absence should call into question the diagnosis of UTI in this patient group. Unfortunately, assessment of pyuria using the centrifuged urine sediment method that is employed in many laboratories is far less accurate and reproducible than counting leukocytes in uncentrifuged urine using a chamber method. Pyuria is also a less sensitive and specific indicator of complicated or catheter-associated UTI than of uncomplicated infections. The article by Mumtaz Ahmad and coworkers reiterate this fact. However, their conclusion that, pyuria as predictor of bacteriuria is the least reliable technique to be recommended in routine clinical practice, needs to be taken in context with their patient population - catheterized patients who are not necessarily symptomatic. Some authors believe that an assessment of pyuria should be undertaken in all patients suspected of having a UTI[9].

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