Dipstick urinalysis for bacteriuria

We noted the comments of Coia and Wills with interest. Both they and other recent authors seem to have assumed that significant growth on culture is the gold standard and that the dipstick is wrong if there is a discrepancy, particularly in the case of negative dipstick and positive culture. But the third and perhaps most important consideration is whether the growth has any clinical importance.

We investigated this problem last year when we examined 5834 urines for protein, blood, nitrite, leucocyte esterase and culture: 2560 (44%) were negative for all four analytes, 33 of which gave a significant growth comprising 0.6% of total specimens, but 9.0% of the 369 significant growths. These findings are similar to others.

From the total we examined 1521 inpatient specimens in greater detail. A clinical bacteriologist visited all available patients who had a specimen with significant growth, or if this was not available, examined the clinical notes to try to determine whether the growth was clinically important. This was assessed from the history and clinical findings, especially regarding temperature, dysuria and loin or suprapubic pain. A decision could usually be made at the first visit but in a few patients repeated inquiries had to be made, especially concerning the effect of treatment on symptoms. The results are summarised in the table where positive means positive for any one of the four analytes and negative means negative for all four analytes.

The causes of this high number of significant growths with no clinical importance (63 of 114; 56%) are sometimes speculative and may vary from place to place. But in our situation, it does seem reasonable to abandon culture in specimens with negative stick results. This can be refined further. We found that the most important single dipstick result regarding a positive culture was a positive nitrite, alone, or in any combination. If nitrite was negative, then the next most important was a positive leucocyte esterase. This alone, however, was associated with an increased number of negative culture results. But if positive in the absence of nitrite positivity and in the presence of positive results in both protein and blood, then there was a closer relation between a positive dipstick result and a positive culture of clinical importance. Furthermore, if we adopted these two dipstick criteria as indications for culture: (i) positive nitrite alone or in any combination; (ii) negative nitrite but positive for leucocyte esterase and blood, then all of those found dipstick negative, even when yielding a significant growth on culture, were not found to be clinically important.

Dr Coia comments:

In our own study we did not attempt to evaluate the clinical importance of all our culture positive isolates. The question we wished to address was how good the semiautomated dipstick test was at predicting the presence of bacteriuria. Significant growth on culture is the accepted standard method for such detection, and as such, any novel method should be compared with it. The data presented by these authors, and in the literature cited by them, would all seem to suggest that the dipstick test is inferior in this respect.

The interpretation of the clinical importance of such bacteriuria is a separate (albeit related) issue, and the point is well made by Loker et al that the results of all diagnostic tests must be interpreted in the light of the clinical presentation. In this context it should be remembered that the clinical importance of bacteriuria is not dependent solely on the presence of symptoms and signs, including those mentioned by the authors. It is widely acknowledged that entirely asymptomatic bacteriuria may be clinically important in certain groups which include children and pregnant women. It is not stated in the letter whether the definition of clinical importance was extended to include such groups.

Automated measurement of plasma viscosity using the Coulter Viscometer II

With reference to the recent letter from DI Fish et al regarding the paper by Cooke and Stuart, we would like the opportunity to bring the subject up to date. Having reviewed the findings, both in the recent paper by Cooke and Stuart and the DHSS document, we found that the daily shutdown procedure has been modified to incorporate a greater concentration of sodium hydrochloride solution (4% available chlorine) and that cleaning the sample valve has been recommended.

The instrument software has been improved to reduce the incidence of “data scatter” messages when analysing high viscosity samples, though in the event of the last message still being encountered, a second analysis of the sample is recommended. Viscosity measurements greater than 5 mPa.s are now reported by the instrument, but are flagged with an asterisk to indicate that the value is outside the linear response range of the instrument. With an extreme increase in plasma viscosity—for example, in severe macroglobulinaemia—will generate the message “BLOCKAGE OVER-RANGE?” which will draw the operator’s attention to an unusually high plasma viscosity or fibrin clot.

We believe that these modifications afford improved instrument performance and provide added benefits to the clinician.

CLO in Meckel’s diverticulum

de Cothi et al recently reported the presence of Campylobacter-like organisms (CLO) in four of 13 Meckel’s diverticula which contained heterotrophic gastric mucosa. We should like to report our experience in 29 such cases which contained heterotrophic mucosa and which were examined histologically in the Departments of Histopathology at the Royal Victoria Hospital and the Belfast City Hospital. Between 1981 and 1985, 109 diverticula removed from 63 men and 46 women were


Table Comparison of dipstick and significant growth with clinical importance in 1521 inpatients

<table>
<thead>
<tr>
<th>No of specimens</th>
<th>Clinical importance</th>
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<tbody>
<tr>
<td>Significant growth + positive stick</td>
<td>98 (51)</td>
</tr>
<tr>
<td>Significant growth + negative stick</td>
<td>16 (0)</td>
</tr>
<tr>
<td>Total</td>
<td>114 (51)</td>
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</tbody>
</table>

Tests arising