Discrepant Results of Serum Creatinine and Cystatin C in a Urological Patient


1 Departments of Pediatric Nephrology, 2 Pediatric Urology, and 3 Clinical Chemistry, VU University Medical Center, Amsterdam, The Netherlands.

* Address correspondence to this author at: Department of Pediatrics, VU University Medical Center, De Boelelaan 1117, NL-1081 HV, Amsterdam, The Netherlands. Fax +31-20-4444444; e-mail k.vanroij@vumc.nl.

CASE DESCRIPTION

A 3-month-old boy was seen for routine follow-up at the pediatric nephrology outpatient clinic. He had been diagnosed as having Sotos syndrome manifesting with craniofacial dysmorphism, feeding difficulties, pulmonary artery stenosis, and atrial septal defect, as well as complex urological abnormalities. He had bilateral hydronephrosis with megaureter and grade V vesicoureteral reflux to the left and grade I to the right kidney. At the age of 6 weeks, static renal scintigraphy using DMSA ($^{99}$mTc-dimercaptosuccinic acid) to assess renal morphology, structure, and function had demonstrated almost symmetrical kidney function (split kidney function left 44% vs right 56%) without cortical scarring.

While his baseline serum creatinine had been 40 $\mu$mol/L (0.45 mg/dL), a sudden rise to 69 $\mu$mol/L (0.79 mg/dL) was noted. Urinary tract infection was ruled out, as was dehydration. On renal ultrasound, dilation of the right collecting system and ureter had increased significantly and a novel fluid collection at the upper pole was noted, which prompted an MRI study (Fig. 1). In addition to serum creatinine, cystatin C measurement was ordered and was within the reference interval for age (1.13 mg/L).

<table>
<thead>
<tr>
<th>QUESTIONS TO CONSIDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the rise in creatinine indicate deterioration of kidney function?</td>
</tr>
<tr>
<td>How do you explain the discrepancy between the 2 markers of kidney function?</td>
</tr>
<tr>
<td>What is the nature of the fluid collection at the right upper pole?</td>
</tr>
<tr>
<td>What test could be used to determine the nature of fluid collection?</td>
</tr>
</tbody>
</table>
Final Publication and Comments
The final published version with discussion and comments from the experts will appear in the April 2017 issue of Clinical Chemistry. To view the case and comments online, go to http://www.clinchem.org/content/vol63/issue4 and follow the link to the Clinical Case Study and Commentaries.

Educational Centers
If you are associated with an educational center and would like to receive the cases and questions 1 month in advance of publication, please email clinchemed@aacc.org.

All previous Clinical Case Studies can be accessed and downloaded online at https://www.aacc.org/publications/clinical-chemistry/clinical-case-studies

AACC is pleased to allow free reproduction and distribution of this Clinical Case Study for personal or classroom discussion use. When photocopying, please make sure the DOI and copyright notice appear on each copy.

AACC is a leading professional society dedicated to improving healthcare through laboratory medicine. Its nearly 10,000 members are clinical laboratory professionals, physicians, research scientists, and others involved in developing tests and directing laboratory operations. AACC brings this community together with programs that advance knowledge, expertise, and innovation. AACC is best known for the respected scientific journal, Clinical Chemistry, the award-winning patient-centered web site Lab Tests Online, and the world’s largest conference on laboratory medicine and technology. Through these and other programs, AACC advances laboratory medicine and the quality of patient care.

DOI: 10.1373/clinchem.2016.261925 © 2017 American Association for Clinical Chemistry