Eur J Pediatr (2004) 163: 749–750
DOI 10.1007/s00431-004-1539-1

SHORT REPORT

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High concentrations of interleukin-8 and monocyte chemoattractant protein-1 in urine of patients with acute Kawasaki disease

Received: 3 May 2004 / Accepted: 15 July 2004 / Published online: 8 September 2004

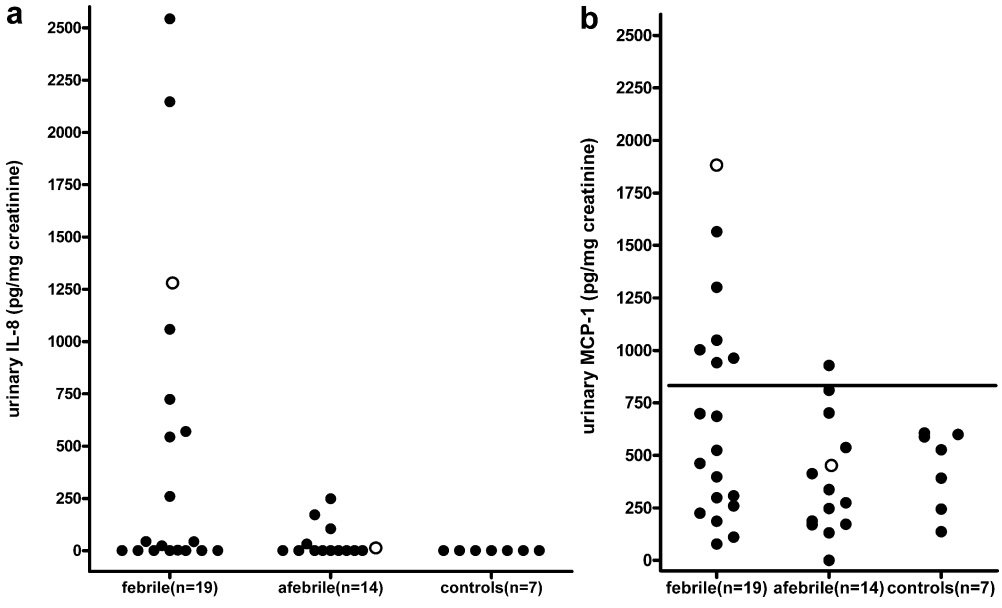

Fig. 1 Urinary IL-8 (**a**) and MCP-1 (**b**) levels. Shown are 33 samples from19 patients with acute KD (19 in the febrile and 14 in the afebrile stage, mean day of illness 6.4 and 14.6, respectively) and seven samples from controls. The assay was performed using commercially available ELISA kits for human IL-8 and MCP-1 (Quantikine, R and D Systems Inc., Abingdon, UK). *Open circles* indicate samples from a patient who developed transient coronary ectasia. The *horizontal bar* indicates 2 SD above the mean control value

We investigated urinary levels of interleukin-8 and monocyte chemoattractant protein-1 [1] in patients with acute Kawasaki disease.

Kawasaki disease (KD) often presents with transient urinary abnormalities such as aseptic pyuria and proteinuria during the acute phase of illness [2, 3, 5]. Freshly voided urine samples from 19 KD patients, aged 2.9 ± 1.6 years, were available during the febrile stage and the afebrile stage after treatment with 2 g/kg intravenous immune globulin over 5 days together with acetylsalicylic acid (30 mg/kg per day). For comparison, urine samples from seven patients aged 2.5 ± 2.5 years, with congenital heart disease who did not show heart failure or urinary abnormalities were studied. During the febrile stage, 11 of 19 KD patients (58%) exhibited detectable levels of urinary interleukin-8 (IL-8) (840 ± 855 pg/mg creatinine), whereas all controls had undetectable levels (Fig. 1a). Additionally, 7 of 19 KD patients (37%) exhibited urinary monocyte chemoattractant protein-1 (MCP-1) levels (1239 ± 352 pg/mg creatinine) greater than 2 SD above mean control values (442 ± 190 pg/mg creatinine) (Fig. 1b). Urinary levels of IL-8 and MCP-1 decreased significantly during the afebrile stage ($P = 0.01$ and $P = 0.01$, respectively) (Fig. 1a,

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b). Urinary IL-8 levels correlated with urinary MCP-1 levels ($P < 0.0001$). Of 19 patients with acute KD, 6 were negative for both urinary chemokines. The 13 patients exhibiting detectable IL-8 or elevated MCP-1 levels had significantly higher levels of both serum C-reactive protein (11.3 ± 6.4 mg/dl versus 4.8 ± 2.7 mg/dl, $P = 0.008$) and urinary N-acetyl-β-D-glucosaminidase (52.5 ± 29.2 U/g creatinine versus 20.2 ± 15.1 U/g creatinine, $P = 0.02$). A similar association between urinary N-acetyl-β-D-glucosaminidase and urinary interleukin-6 was previously reported [4]. No relationship was evident between urinary chemokine levels and urinary abnormalities such as pyuria and haematuria. We speculate that high urinary concentrations of the chemokines may reflect the disease activity of systemic inflammation in patients with acute KD.

Acknowledgements We thank H. Ohashi and A. Kudou for their excellent technical assistance.

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