Teaching Point

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Coma in a haemodialysed patient

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Case report

This 47-year old hemodialysed woman was referred to our unit for evaluation of stupor. Haemodialysis (HD) had been initiated 10 months earlier for end-stage renal disease of unknown etiology, complicated by severe hypertension.

Four days before referral, she felt ill: her temperature reached 38.6°C. At her next dialysis session, two days later, she was still febrile (39.1°C) and slightly obtunded. C-reactive protein level was markedly elevated. Blood cultures were obtained and Ceftazidime (2 g/day) and Vancomycin (1 g) were administered intravenously. A brain computerized tomography was normal. The next day, her temperature normalized but she became increasingly obtunded. Toxicological screening proved negative. Lumbar puncture yielded a clear fluid with normal protein and glucose levels, 27 white blood cells (96% neutrophils) and 500 red blood cells/ul. She was transferred to our hospital.

On admission to our unit, she had a Cheyne-Stokes respiration, grade 1 coma. Blood pressure was 110/80 mmHg, temperature 37.2°C. Cardiac examination disclosed a new 4/6 murmur of mitral insufficiency and a heart rate of 66/min. Except for coma, the neurological examination was normal. The radiocephalic arteriovenous (AV) fistula was markedly erythematous with mild purulent discharge.

A provisional diagnosis of acute endocarditis presumably due to Staphylococcus aureus was made. Multiple blood cultures were obtained and high-dose antibiotics (oxacillin 8 g/day and Vancomycin 1 g) were administered. Transoesophageal echocardiography demonstrated the presence of vegetations on the mitral valve (Figure 1), and perhaps on the aortic valve. Rupture of the AV fistula required emergency surgical ligation. As neurological evoked potentials were only moderately disturbed, she underwent emergency mitral and aortic valvular replacement with prosthetic valves. Acute endocarditis was confirmed both macroscopically and bacteriologically (blood cultures as well as the mitral valve grew multisensitive Staphylococcus aureus). Unfortunately, despite appropriate high-dose antibiotics, she remained comatose. A brain computerized tomography, two weeks later, showed multiple small brain abscesses. She died 4 weeks after surgery.

Discussion

S. aureus sepsis remains an important cause of morbidity and mortality in HD patients, as illustrated by this case [1,2]. It is favoured by the frequent S. aureus nasal carriage in HD patients and usually originates from the vascular access (either fistula, graft or catheter) whose infection may initially not be obvious. Thus S. aureus sepsis should seriously be suspected in any febrile HD patient, especially if no other focal infection (e.g. pneumonia) is evident [2]. Early empirical antibiotic treatment (awaiting blood cultures’ results) may prevent complications with a gloomy outcome.

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prognosis, especially shock and endocarditis. In 1973, Leonard et al. reported nine cases of acute endocarditis among 330 HD patients, most of whom were dialysed through AV Scribner shunts [3]. Presenting signs included fever, new heart murmurs or neurological signs such as lethargy, seizures, aphasia, or haemianopsia. Peripheral signs of embolism were usually absent. Endocarditis involved mainly left heart valves and was due to S. aureus (n = 4), S. epidermidis (n = 1) or other gram positive bacteria (n = 4). Prognosis was poor as seven out of nine patients died.

Recently, we reevaluated in a retrospective study the incidence, clinical signs and prognosis of bacterial endocarditis in Belgian patients, over 90% of whom were dialysed through AV fistulas [4]. All patients haemodialysed in 14 units, between September 1, 1988 and August 31, 1991 were included (n = 683). Bacterial endocarditis was diagnosed in seven cases on the basis of either peroperative gross macroscopic evidence (n = 4), or typical echocardiographic aspect with positive blood cultures (n = 3). The incidence of endocarditis was 0.6 case per 100 patient-years. Fever (n = 7) was frequently accompanied by neurological signs, such as confusion (n = 2), haemiparesia (n = 2). The predominant involvement of left heart valves was confirmed. Most importantly, the diagnosis was frequently delayed (a median of 27 days after the first symptoms or signs!). Causative organisms were S. aureus (n = 5), S. epidermidis (n = 1), unknown (n = 1). An infected fistula (n = 2) or a central venous catheter (n = 1) were the source of infection in three cases. The four other patients had major scratch lesions. Three out of the seven patients died.

**Teaching points**

In a HD patient with unexplained fever, suspect S. aureus sepsis, examine carefully vascular access site, obtain blood cultures, and consider empirical intravenous antibiotics.

In a HD patient with proven or suspected S. aureus sepsis, suspect endocarditis if neurological signs or a new heart murmur develop.

**References**