Actinobacillus actinomycetemcomitans endocarditis: an unusual cause of rapidly progressive glomerulonephritis

Sir,

Although infrequent, rapidly progressing glomerulonephritis (RPGN) with renal vasculitis can be secondary to infective endocarditis. *Actinobacillus actinomycetemcomitans* (Aa) is a fastidious gram-negative coccobacillus which belongs to the HACEK group of bacteria (HACEK: *Haemophilus, Actinobacillus, Capnocytophaga, Eikenella* and *Kingella*) which is frequently involved in infective endocarditis but has been rarely associated with RPGN development [1–4]. We describe here the unusual presentation of one of our patients who was referred to our nephrology unit for RPGN associated with Aa endocarditis. She was 75 years old and was treated with acenocoumarol for paroxysmic atrial fibrillation. On admission, her temperature was 37.2°C, and physical examination revealed only lower-limb oedema, associated with an infiltrative purpura of both legs. She presented an acute renal failure with a serum creatinine of 334 μmol/l on admission (88 μmol/l 1 month before), associated with a glomerular proteinuria (0.8 g/day) and macroscopic haematuria (red blood cells casts >10⁶/ml). She also presented with an overdosage of acenocoumarol (prothrombin time (TP) <10%). The association of RPGN with the lower limb purpura without a clear infectious context led us first to the diagnosis of a small-vessel vasculitis of auto-immune origin. Steroid treatment was rapidly commenced, associated with two plasma exchanges. Renal function quickly improved. A few days later, we found normal levels of complement and no auto-antibodies nor cryoglobulinaemia. A percutaneous renal biopsy was at last performed after the correction of haemostasis troubles and revealed an endocardial proliferative glomerulonephritis, associated with fibrinoid necrosis in one glomeruli, and interstitial haemorrhagic suffusion. The immunofluorescence study showed intense granular mesangial-parietal deposits of IgG, IgM, IgA, C3 and C1q and fibrin deposits on one arteriole. Twenty-one days after admitting the patient, two blood cultures yielded *A. actinomycetemcomitans*. Buccal examination revealed a diffuse periodontitis. Transthoracic echocardiography did not detect any vegetation or abscess but showed multiple valve regurgitations. Therefore, our patient was diagnosed with Aa endocarditis, and then intravenous antibiotics were started. Corticotherapy was stopped, and dental extractions were performed. Renal function improved progressively, and 1 month later her serum creatinine was 162.8 μmol/l.

The diagnosis of Aa endocarditis-related RPGN is based on the presence of endocardial proliferation, associated with mesangial and/or parietal granular deposits of C3 alone or associated with immunoglobulins, in the context of Aa-positive blood cultures. However, the organism grows slowly (generally 2 weeks) which may retard the diagnosis. The particularity of our case is that we observed renal vasculitis lesions, which is unusual during infectious glomerulonephritis. The association of a purpura with RPGN without fever nor a heart murmur, the delayed results of the biopsy and the late positivity of the blood cultures led us initially to the diagnosis of auto-immune vasculitis and to treat our patient with steroids. However, renal function ameliorated quickly before antibiotic therapy was started, illustrating the fact that an initial highly favourable response of vasculitis to immunosuppressive therapy does not exclude an infectious cause. Immunosuppressive treatments in infective glomerulonephritis are still controversial [5]. Indeed steroids are not currently recommended but could be used after controlling the sepsis, in association with an appropriate anti-infectious treatment if renal recovery is not obtained. Our case emphasizes that even in the absence of fever or heart murmur, dental examination, repeated blood cultures and transthoracic echocardiography are recommended during RPGN, yielding an infective cause sometimes more than 2 weeks after the initial presentation.

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Stable flexibility: the secret for a successful daily dialysis programme. A focus group

Sir,

Growing interest in the assessment of quality of care and of ‘customer satisfaction’ has led to the application in the clinical setting of evaluation methods derived from other fields,
Table 1. The ‘recipe’ for a successful daily dialysis programme

|   | Main points and comments on the major requirements of a daily dialysis programme |
|---|--------------------------------------------------------------------------------|
| 1 | Flexibility of time of dialysis start and dialysis duration, to minimize the impact of treatment on daily activities |
| Comments | When you are on daily dialysis, you should be the master of your time and be free to decide when you want or need more or less dialysis; overall, you know how much you need for the week, but you are the first one to know if it’s better to stay longer because you are going out to eat and you want to be ‘clean’, or if you are in a hurry because kids are getting out of school earlier |
| 2 | Tailoring of controls, both for imaging and blood tests and for clinical visits; the patients should give more attention to their timing and results |
| Comments | We are not all alike; daily dialysis is a tailor-made treatment, and we need different controls, for example of anaemia or for parathyroid hormone (PTH); the frequency of controls should be defined for each patient: what is too much for one may be too little for another patient. We need to learn how to read our blood tests; by this means, we will be able to tailor the duration of our dialysis sessions |
| 3 | Stable group of caregivers, with close personal relationships. Scheduled clinical visits, plus visits on demand; at least twice a year with the senior caregiver |
| Comments | We want to trust our caregivers and to have a close personal relationship with them, both doctors and nurses. Without trust there is no room for daily dialysis. We want to organize our life; we would like to have personal planning of visits, and at least twice a year we would like a visit with the senior caregiver, but what is crucial is to be visited soon, when we need it, more than performing a long series of controls. We are already here almost every day (comment of an in-centre dialysis patient and of her partner) |
| 4 | Identification of a stable network of consultants for the most important clinical problems (cardiology, urology and andrology, vascular surgery) to guarantee global continuity of care |
| Comments | We hate when we are seen by a different consultant every time. If we need a cardiology control twice a year, for instance, it’s much better if we always meet the same physician, instead of changing every time… each time you repeat the same story, you tell your story from the very beginning, and often you talk with people who have only a slight idea of what dialysis is… |
| 5 | Identification of other centres performing DHD, especially for vacations |
| Comments | We chose daily dialysis for better quality and greater freedom; thus, we would also like to perform it during our vacation: there is no reason why, when we most need freedom and well-being, we are forced to go back to a treatment we like less…. We would like to have a second dialysis monitor for vacations, if we have a second home at the seaside or in the countryside…. we know it’s expensive, but also going to the other centres is expensive. Freedom is priceless (comment of a home haemodialysis patient) |
| 6 | Monthly seminars for patients, family members and nurses to update the knowledge on dialysis, transplantation and common problems in dialysis patients |
| Comments | We know we are a sort of elite; only patients who know what dialysis is and who accept the impact of dialysis in their daily life are able to choose daily dialysis. We are more curious and attentive than most of our colleagues, and we want to know more on several subjects…. There is nothing wrong in being an elite…. Educational sessions are crucial to make us live as a small ‘community’, as a group (comment of the nurses) |
| 7 | Teaching sessions on technical novelties of the dialysis machines to improve and increase self-management not only at home but also in the dialysis centre |
| Comments | You call it empowerment of the patients... You need to enhance this further to choose daily dialysis; the technical aspects of the monitors are often guarded as secrets… After all, we run our machines, and we are curious to know the type of underlying controls; we do not feel that our washing machines are less complex, but we have the user’s manual when we buy them… The treatment of empowered patients is easier but requires a high level of knowledge by the caregivers (comment of the trainee) |

Note: For comments on each individual point, see our website.

such as marketing and political analysis. Focus groups belong to this approach; their flexibility is of interest in assessing strategies directed at new or niche products; the subjectivity and the link to emotional responses is both a resource and a limit of this approach as well as of most qualitative research [1,2]. The application of the focus group on dialysis is still limited [3].

Daily haemodialysis (DHD) and home haemodialysis can both be considered niche products: there is high theoretical interest in them, but they also have a ‘patchy’ and relatively low diffusion, reflecting the need for context-sensitive solutions [4–6].

Therefore, we tried to define a list of minimal requirements for a successful DHD programme (at home and in a dialysis centre) on the basis of a focus group including patients and caregivers with different experiences of dialysis and transplantation. The focus group involved 11 participants plus the facilitator-conductor, a caregiver in a satellite centre offering DHD to home and in-centre patients. There were six patients (out of 12 on DHD at the time of study), two family members, the two head nurses and one junior physician; the median age was 45 years (range 28–70), the educational level of patients and family members was in line with the urban northern Italian situation (three of eight, primary school; two university; three high school level). The common element was participation in a DHD programme for at least 6 months. The discussion lasted for about 2 h, was tape-recorded, transcribed and summarized; the results were separately discussed and approved in the final version by all participants.

The questions chosen were broad-ranging and simple: imagine planning a ‘marketing strategy’ for DHD: what makes you happy with a daily dialysis programme? What are the main requisites for success? How would you orga-
nize a programme? The group was aware that the discussion would be at the basis of the planning strategy for a new DHD programme.

The discussants identified seven points of practical interest (reported in Table 1).

The patients identified themselves as 'elite' of dialysis treatment, characterized by greater psychological acceptance and interest in all fields of treatment, thus suggesting that an educational approach may be an important tool for promoting DHD. The need for 'stable flexibility' has two components: continuity of care and personalized schedules as the consequence of non-standardized approach. DHD is intrusive in daily life, and the patients admit it. The importance of the vacation period is in line with the need to 're-invest' the renewed well-being in those aspects of daily life, such as vacations, that are often neglected in the care of haemodialysis patients.

Our pilot analysis has some limitations, first of all involving only a selection of ‘elite’ patients; however, the focus was on the definition of a ‘marketing DHD strategy’, and it was felt that only individuals with specific experience could contribute. A further step could be inquiring also on reasons for not choosing DHD widening the discussion with dialysis patients who chose different dialysis modalities in settings where DHD is available (cons of treatment), as well as involving patients and caregivers from settings where this option is not available (analysis of the expectations).

As a closing remark, we would like to stress the importance of the commitment of patients and caregivers in this new adventure. This may also offer an interpretation for the strong ‘centre effect’, with a patchy distribution of DHD. As patients stated, without mutual trust there is no room for daily dialysis.

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Workload during haemodialysis sessions

Because of longer life expectancy in the general population and progress in medicine, nephrology units are providing care for increasingly elderly and frail patients [1,2]. Moreover, the prevalence of patients on haemodialysis (HD) is rising steadily [3,4]. In this context and within the framework of morbidity–mortality reviews, the Lorraine network of care suspected an increase in workload for HD sessions. To date, certain events, e.g. intradialytic hypotension [5,6], iron [7] or erythropoietin [8] administration during HD sessions have been studied separately. To our knowledge, a tool remains to be developed to quantify overall HD-related workload.

A retrospective study was conducted on a representative sample of the chronic HD population in Lorraine: 123 patients were selected at random on 1 July 2005. Charts were available for 102 of these patients for the purpose of this retrospective study. Data collected over a 1-year period for 19 variables concerning events occurring during HD sessions were recorded: administration of heparin, iron, epo, antibiotics, NaCl, albumin, blood transfusion, hypotension, dressings, parenteral nutrition, delivery of analgesics, pain, dyspnea, confusion, rhythm disorder, line clotting, vascular access problem, complementary tests and hospital admission. For each patient, a frequency of occurrence value (1 = never, 5 = at each session) was attributed to each variable. These values were then used to construct a workload score for haemodialysis care which could be used to search for parameters associated with time-consuming events for the healthcare staff. The frequency of occurrence scores for the main events occurring during HD sessions are presented in Figure 1a and b. In order to quantify HD workload, eight variables associated with the greatest workload were selected and weighted by frequency of occurrence. This produced a workload score ranging from 8 to 40 for each patient. Two management profiles were defined: regular care (workload score <15) and complex care (workload score ≥15). Two-way analysis of variance identified factors associated with complex care: age >60 years (p < 0.01), elevated C-reactive protein (p = 0.04), use of catheter for dialysis (p < 0.01), New York Heart Association (NYHA) stage 3 or 4 heart failure (p = 0.03). None of the other comorbidity items was associated with complex care.

Surprisingly, this retrospective study suggested that comorbid conditions associated with end-stage renal failure are not the main determinants for care workload during HD sessions. Variables more specifically related to the dialysis itself (vascular access, weight gain) or intercurrent events (C-reactive protein) had a significantly greater im-