Measles susceptibility in haemodialysis patients in Argentina

Sir,
Despite the effort made by the PAHO/WHO to eliminate measles, outbreaks have been observed in Argentina (>14000 cases in 1998) as well as in other South American countries [1]. Infections remain a major cause of morbidity and mortality in transplant recipients. Therefore, achieving immunity to viral infections before renal transplantation is crucial. However, there is no information available about measles protection in adult patients in end-stage renal failure (ESRF).

In this prospective study, we have investigated the measles serological status and vaccination response in a haemodialysis unit in Buenos Aires, Argentina, in September 1998. There were 87 patients, 39 females, 48 males, mean age 56 (21–87) years, mean time on haemodialysis (HD) 39.7 (3–209) months. Primary diseases were diabetes 27, nephrosclerosis 25, polycystic kidney disease 15, chronic glomerulonephritis 13, obstructive uropathy two, systemic lupus erythematosus one, reflux nephropathy one, and unknown three. One patient was HsAg positive, four were non-responders to HBV vaccination, 16 were anti-HBc positive and 17 were seropositive for anti-HCV antibodies. None of them was receiving immunosuppressive therapy. The average use of erythropoietin (EPO) was 4000 IU/week. The albumin serum level was <3.5 g/dl in only 22 patients. Forty-eight patients were registered on the renal transplant waiting list. Forty-two members of staff, 27 females and 15 males, mean age 43 (23–62) years, were also studied. Baseline serological testing has been performed. Measles virus IgG antibodies were titrated by immunofluorescence assay (BION® slides and anti-human IgG immunoglobulin–FITC (Dako®); titres ≥40 were considered protective. Thereafter, patients who agreed to the procedure and all control subjects without measles antibodies received vaccination, whereas those with protective antibody levels were not vaccinated. Serological testing for follow-up was done in both patient/control groups in September 1999 and September 2002.

Patient follow-up showed that in the vaccinated group (n = 34), two received a renal transplant, two died and two were referred to another hospital before the 1999 serological testing, while four died and four were referred to another hospital between the 1999 and 2002 studies. In the seropositive patient group (n = 38), one received a renal transplant, two died and three were referred to another hospital before the 1999 serological testing, and three did not agree to provide blood samples. Of the 29 patients studied in 1999, two received a renal transplant, two died and four were referred to another hospital before the 2002 testing, whereas seven did not agree to provide blood samples.

Only 38 of 87 patients (43.7%) had antibody titres ≥40. Of these, 25 stated having had natural measles and five remembered having been vaccinated. Of the 49 unprotected patients, 20 had a natural infection (clinical diagnosis) and six had anti-measles vaccination. Remarkably, only one of the 12 patients (8.3%) born between 1956 and 1980 had detectable antibody levels, whereas 37 of 75 patients (49.3%) born before 1956 had titres ≥40 (P = 0.01; Fisher exact test). In contrast, 38 of the 42 staff members (90.5%) showed titres ≥40 (18 of 22 born between 1956 and 1980 and all 20 born before 1956). This proportion is significantly higher than in the patients (P < 0.001; χ² test).

Thirty-four patients and four staff members with undetectable antibody levels were vaccinated using Rouvax (Pasteur Merieux) subcutaneously. No side effects were detected. In 1999, 24 of 28 vaccinated patients tested showed antibody titres ≥40, whereas in 2002, only seven of 20 vaccinated patients tested showed the same titre. In contrast, all four vaccinated staff members showed antibody titres ≥40 in both 1999 and 2002. Of the group of patients that already had titres ≥40 in 1998, 28/29 and 12/14 still had antibody titres ≥40 in 1999 and 2002, respectively. Only 15/31 patients entering dialysis after 2000 showed antibodies ≥40, demonstrating the persistence of this problem.

Undetectable antibody titres occurred in both patients who declared natural measles infection and vaccinated patients. The loss of immunity could be related to ESRF. Immunization rates after vaccination were excellent and similar to those previously reported for children on dialysis [2–4]. However, anti-measles antibodies decayed after 3 years. In the general population, the percentage of protection reached 87–100% after more extended time periods [5]. People born between 1956 and 1980 deserve special attention because it is uncertain whether they had a natural infection or received adequate vaccination. We estimated that this group would be the major group receiving dialysis after 2015, but, as younger ESRF patients have a higher probability of receiving a transplant than older patients, this age group will include the majority of transplanted patients within the next 5 years.

In summary, the reaction of dialysis patients to a measles epidemic (especially in those who have never been vaccinated before) may generate a critical problem that should be considered carefully by transplant teams and nephrologists.

Conflict of interest statement: None declared.

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