Listeriosis in a Patient with Long-Term Hemodialysis but without Iron Overload

G.		Bufano ^a
T.		Ceruti ^b
L.		Ferrari ^b
F.		Pecchini ^a

Divisions of ^aNephrology and ^bClinical Pathology, Hospital of Cremona, Italy

Prof. Franco Pecchini, Via Bordigallo 24, I-26100 Cremona (Italy)

Dear Sir,

Listeriosis is due to infection with a facultative intracellular parasite causing illness mainly in immunocompromised persons. Only a few cases of *Listeria monocytogenes* bacteraemia have been reported in patients undergoing haemodialysis [1, 2], while it has been noted more often in transplanted patients [1].

A cause-and-effect relationship between listeriosis and iron overload has also been put forward [2, 3]. We present a case in which iron data were not high at the onset of illness and during a long time before.

A 69-year-old man with chronic renal failure due to glomerulonephritis received 4-hour maintenance haemodialysis three times weekly over a period of 6 years, with right iliac artery surgery as the only complication 1 year earlier. Erythropoietin, calcium carbonate, aluminium gels and ranitidine were side-dialysis drugs. Due to fistula malfunction a subclavian catheter was positioned and a chest X-ray showed the correct position afterwards. 24 h later, fever (39°C), hypotension and mental disorder appeared. A blood culture specimen was obtained at the same time with a white cell count of 9,400 (93% polymorphonuclear), red blood cells (3,400,000/mm³) and haemoglobin (7.8 g/dl). A ferritin value of 53 ng/ml (normal 29-371) had been measured only a few days before and this value was in agreement with the iron data observed 10 months previously: 534 µg/ml total iron-binding capacity and 480 unsaturated iron-binding capacity. Total plasma protein was 6.8 g/dl with 57.6% albumin and 19% γ-globulin. In spite of treatment with cefotaxime (1 g i.v.), on the following day chills and fever again developed (39.2°C) and nethilmicin (150 mg i. m.) was needed, but during the next night the patient died of septic shock. Blood culture revealed *L. monocytogenes*. Three series of patients, one with renal transplants, one undergoing long-term haemodialysis and another one with gastroenteritis, presented with the same frequency of *Listeria* in faecal specimens [4]. However, chronic renal diseases are included among the disorders associated with an increased susceptibility to *L. monocytogenes* [5], even though the number of patients undergoing long-term haemodialysis in whom that infection develops is extremely small [2].

An Italian series comprising 50 cases reported only 1 dialyzed patient, while 6 more were living with a transplanted kidney [1]. Among 127 haemodialyzed patients, 4 presented infections with *L. monocytogenes*, all with autopsic or laboratory data revealing an iron

overload [2]. This last situation was said to increase the susceptibility to *L. monocytogenes* infection by stimulating the growth of the microorganism and by reducing the phagocytic capacity of monocytes [3].

Our case is interesting because iron overload was not seen during the development of *L. monocytogenes* infection. Chronic use of ranitidin may be involved since the microorganism grows at pH 6-9 and all strains are inhibited at a pH below 5.5 [6]. Due to easy food-borne illness, aged and particularly immunocompromised haemodialysis patients should be cautious when continuously using antacids and should avoid eating foods such as unpasteurised milk or cheese, raw cabbage and pâté [6,7].

References

- Casolari C, Farina C, Caola I, Vacinelli B, Fabio U: Considerazioni microbiologiche e clinico-epidemiologiche su 50 casi di listeriosi umana. *Microbiol Med* 1991;6:141-146.
- Mossey RT, Sondheimer J: Listeriosis in patients with long-term hemodialysis and transfusional iron overload. *Am J Med* 1985;79:397-400.
- Sweder van Asbeck B, Verbrugh HA, Van Oost BA, Marx JJM, Imhof HW, Verhoef J: *Listeria monocytogenes* meningitis and decreased phagocytosis associated with iron overload. *Br Med J* 1982;284:542-544.
- Macgowan AP, Marshall RJ, Mackay IM, Reeves DS: *Listeria* faecal carriage by renal transplant recipients, haemodialysis patients and patients in general practice: Its relation to season, drug therapy, foreign travel, animal exposure and diet. *Epidemiol Infect* 1991; 106: 157-166.
- Gellin BG, Broome CV: Listeriosis. *JAMA* 1989;261:1313-1320.
- Jones D: Foodborne listeriosis. *Lancet* 1990; 336:1171-1174.
- Lauchlin JMc, Hall SM, Velani SK, Gilbert RJ: Human listeriosis and pâté: A possible association. *BMJ* 1991;303:773-775.