

pathological fracture of the femur. A case report. *J Bone Joint Surg [Am]* 1978; **60**: 135-7.

8 Hervé J P, Cledes J, Bourbigot B, *et al*. Apparition d'une amylose généralisée au cours de l'hémodialyse: à propos d'une observation. *Nephrologie* 1984; **5**: 92.

SIR, Further to Dr Huaux's letter I would like to make it clear that I do not challenge in any way the observations made by his and other groups, nor do I reject the concept of amyloid induced bone and joint disease in patients receiving chronic haemodialysis. My criticism is of the interpretation of the results. The discovery of amyloid in symptomatic joints of patients undergoing haemodialysis is not of itself evidence that it is responsible for the symptoms. Only after adequate control studies have failed to show the presence of amyloid in asymptomatic but otherwise adequately matched patients should a possible pathogenetic link between amyloid and the connective tissue disorders associated with haemodialysis be postulated. It is perhaps worth summarising the evidence for 'amyloid arthropathy' and discussing its potential significance.

There is a syndrome manifested most frequently by joint pain or carpal tunnel syndrome, or both, which is a significant cause of morbidity in patients undergoing long term haemodialysis. It affects as many as 30% of patients on dialysis for more than seven years,¹ and some of its clinical and radiological manifestations are reminiscent of the amyloid deposition disease seen in other disorders. Amyloid is present in many symptomatic sites in this syndrome but is also recognised to occur in association with carpal tunnel syndrome in non-dialysed patients² and in the joints of asymptomatic dialysis patients. The amyloid in dialysis patients contains the protein β_2 microglobulin (β_2M),³ increased serum levels of which are found in patients with renal failure, including patients undergoing haemodialysis and those receiving continuous ambulatory peritoneal dialysis.⁴ Only in haemodialysis patients dialysed across conventional cellulose type membranes is the syndrome encountered.

If β_2M amyloid is the cause of the syndrome then removing it or preventing its accumulation should be the therapeutic goal. β_2M can be removed at dialysis if a highly permeable dialysis membrane material such as polyacrylonitrile is used instead of the conventional cellulose.⁵ The long term use of this membrane may well reduce the incidence of 'amyloid arthropathy'.¹

There is, therefore, circumstantial evidence causally implicating β_2M amyloid in this syndrome. If all the disparate studies connect in the ways suggested then the logical therapeutic response would be to change all dialysis membranes. This has a variety of far reaching implications, and any decision needs to be based on sound scientific evidence. In particular, it is mandatory that the basic premise—amyloid causes the symptoms—is correct. It may well be, but I am still not convinced that the uncontrolled studies performed to date are adequate proof of this connection. Adequate control studies would be simple to undertake, and until it can be shown that amyloid is not a universal finding in the joints of patients receiving long term haemodialysis treatment, use of the term 'amyloid

arthropathy' with all its attendant pathogenetic implications cannot be justified.

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References

- 1 Vandenbroucke J M, Jadoul M, Maldague B, Huaux J P, Noel H, van Ypersele de Strihou C. Possible role of dialysis membrane characteristics in amyloid osteoarthropathy. *Lancet* 1986; **i**: 1210-1.
- 2 Walts A E, Goodman M D, Matcrin P A. Amyloid, carpal tunnel syndrome and chronic hemodialysis. *Am J Nephrol* 1985; **5**: 225-6.
- 3 Gejyo F, Yamada T, Odani S. A new form of amyloid protein associated with chronic haemodialysis was identified as β_2 microglobulin. *Biochem Biophys Res Commun* 1985; **129**: 701-6.
- 4 Ballardie F W, Kerr D N S, Tennent G, Pepys M B. Haemodialysis versus CAPD: equal predisposition to amyloidosis? *Lancet* 1986; **i**: 795-6.
- 5 Hauglustaine D, Waer M, Michielsen P, Goebels J, Vandeputte M. Haemodialysis membranes, serum β_2 microglobulin and dialysis amyloidosis. *Lancet* 1986; **i**: 1211.

Amyloid arthropathy in haemodialysed patients

SIR, Two recent letters to the editor in the *Annals*^{1 2} about our paper on amyloid arthropathy in patients undergoing haemodialysis³ have suggested that the finding of amyloid in the synovial tissue or fluid, or both, of these patients could be interpreted as an epiphenomenon related mainly to aging and osteoarthritis.

We would like to point out the following facts. The patients presented a rather characteristic picture (persistent swelling of several joints, mainly shoulders, knees, wrists, finger tenosynovitis, and carpal tunnel syndrome). Their x rays did not show osteoarthritis but geodes and erosions that can lead to a destructive arthropathy, and as has been reported by other authors^{4 5} it is possible to demonstrate amyloid in the bone as well as in the synovial tissue. In a study that we have just finished we failed to show amyloid in synovial tissue and synovial fluid in 10 age matched patients with diverse rheumatic diseases.

These facts make it improbable that aging and osteoarthritis were the cause of the amyloid deposition in our cases, beside the fact that in these other circumstances the synovial deposits are minimal and, as far as I know, of little clinical significance.

The tinctorial characteristics of the amyloid, using the Wright technique, in our cases pointed towards an amyloid of immunological origin (AL amyloid). Recently the biochemical nature of amyloid in amyloidosis associated with haemodialysis has been identified as a protein homologous with normal plasmatic β_2 microglobulin,⁶ which is known to accumulate in the circulation of patients with chronic renal failure and because of its size cannot be removed from the plasma during haemodialysis.

We have started immunohistochemical analysis of the amyloid found in our patients, and at this stage we have

preliminary results for ten of them. The amyloid found in annular ligament and perineural region in three cases and in fragments of villi of knee synovial fluid sediment in another seven cases were studied by means of immunohistochemical analysis using the peroxidase-antiperoxidase method, with anti β_2 microglobulin antibodies (Dako), confirming that they contain β_2 microglobulin.

As Ian Rowe points out 'although the biochemical nature of amyloid deposits in osteoarthritic joints has not been characterised, it should be possible to determine whether these or any other age related amyloid deposits contain β_2 microglobulin'.⁷

Until then, and considering all the above mentioned points, we think that there is no basis for considering that we are dealing with the same kind of amyloidosis.

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References

- 1 Freemont, A J. Amyloid arthropathy in patients with chronic renal failure. *Ann Rheum Dis* 1986; **45**: 349.
- 2 Cary N. Synovial amyloid deposits and chronic haemodialysis. *Ann Rheum Dis* 1986; **45**: 438.
- 3 Muñoz-Gómez J, Bergadá-Barado E, Gómez-Pérez R, *et al*. Amyloid arthropathy in patients undergoing periodical haemodialysis for chronic renal failure: a new complication. *Ann Rheum Dis* 1985; **44**: 729-33.
- 4 Bardin Th, Kuntz D, Zingraff J, Voisin MC, Zelmar A, Lansaman J. Synovial amyloidosis in patients undergoing long term haemodialysis. *Arthritis Rheum* 1985; **28**: 1052-8.
- 5 Huaux J P, Noël H, Bastien P, *et al*. Amylose articulaire, fracture du col fémoral et hémodialyse périodique chronique. *Rev Rhum Mal Osteoartic* 1985; **52**: 179-82.

6 Gei Yo F, Yamada T, Odani S, *et al*. A new form of amyloid protein associated with chronic haemodialysis was identified as beta 2-microglobulin. *Biochem Biophys Res Commun* 1985; **129**: 701-6.

7 Rowe I F. Synovial amyloid deposits and chronic haemodialysis. *Ann Rheum Dis* 1986; **45**: 438.

Note

Symposium on antirheumatic drugs: basis for variability in response

A satellite meeting of the 10th International Pharmacology Meeting, Sydney, Australia will be held on 20-22 August, 1987 at Manly Pacific Hotel, Manly, Sydney, Australia. Details from Professor P Brooks, Department of Rheumatology, Royal North Shore Hospital, St Leonards, Sydney, NSW, Australia 2065.

Correction: Clinical vignette—The 'L4 syndrome' as a cause of obscure knee symptoms

In this vignette by Drs M I D Cawley and J C Robertson (*Ann Rheum Dis* 1986; **45**: 704) we regret that a word was omitted from the first sentence. This should have read 'The deep pain referral territory (sclerotome) of the fourth lumbar segment includes the knee and anterior tibial region.'



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