RENAL FAILURE IN YOUNG SUBJECTS WITH FAMILIAL GOUT

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The classical patient with gout is usually an older male, and gout is rare in premenopausal females. Until recently, renal failure was common in gout, but is now rare. Renal involvement however, as judged by low urine pH and proteinuria, remains common, although concentrating ability and GFR are not usually different from age-matched controls. Conversely, gout is rarely diagnosed in renal failure from other causes, despite mild hyperuricaemia as part of the general retention of nitrogenous waste. If all patients entering terminal renal failure and offered dialysis or transplantation are examined, less than 1% have gout recorded as the cause (Table 1).

The combination of gout and renal failure is even more unusual in young patients, yet an examination of the few individuals who required dialysis and transplantation in our unit because of gout showed that all were young (Table 1), and two of the four were

Table 1. Data of the European Dialysis and Transplant Association: patients treated by dialysis or transplantation in Europe 1963-1977

<table>
<thead>
<tr>
<th></th>
<th>No. dialysed for terminal renal failure</th>
<th>No. with gout causing t.r.f.</th>
<th>Women</th>
<th>No. of patients subsequently transplanted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>69,400</td>
<td>454 (0.7%)</td>
<td>36 (8%)</td>
<td>40m, 2f</td>
</tr>
<tr>
<td>Guy's Hospital</td>
<td>472</td>
<td>4* (0.8%)</td>
<td>2 (50%)*</td>
<td>2m, 1f</td>
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</tbody>
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* Aged 32, 34 (see text), 40 and 41 at terminal renal failure (t.r.f.)
female. This led us to attempt a survey of the patients in South East England who had both gout and renal failure, which revealed several patients with a family history of gout and/or renal failure. Studies of renal function and purine metabolism have been done in five such families; one of these families is the subject of a more detailed report to be published elsewhere. We know of two further families not yet studied.

PATIENTS (Table II)

Family I (Fig. 1) included an affected brother and sister (Table II (a)) who both developed gout and terminal renal failure in their thirties. Investigation of this family was not possible because all other members were abroad, and the proposita presented in renal failure. Control of her blood pressure and plasma urate concentration (allopurinol 200 mg/24h) failed to arrest the decline in her renal function over the next three years; her creatinine clearance fell from 35 ml/min to zero, and she was dialysed from 1972. Two years later she received a cadaver allograft, but suffered marrow depression from her azathioprine during the course of a rejection episode, and died of infection and cerebral infarction.

Family II contained a pair of identical twins who, alone in their family, developed gout, renal failure and hypertension which was evident early in the course of their disease, and small kidneys on IVU. Their mother was hypertensive (210/110) but normouricemic. Both successfully completed pregnancies by Caesarian section taking allopurinol. Despite treatment of both hypertension and hyperuricemia, the first twin showed an initial decline in renal function, but five years later had blood urea no higher than at first measurement. The other twin is now in France.

Family III was identified when acute gout developed in a 9 year old girl (a) whose nonidentical twin sister (b) was hyperuricemic, and whose mother and her identical twin sister were being treated for advanced renal failure, as was a third sister; all three died of renal failure aged 36-46. The proposita and her twin had normal blood pressure, even though renal disease was already evident (Table II). A dominant mode of inheritance affecting nine females in three generations was present. IVU demonstrated contracted kidneys, and renal biopsy in three members showed patchy interstitial nephritis with tubular lesions, dilatation and atrophy (Farebrother et al, in preparation). Treatment initially with sulphinpyrazone then with allopurinol in the proposita, her sister, and allopurinol in two cousins (d,e), appears to have arrested the progress of the disease over periods of up to 15 years.

In Family IV there was a history of gout on both sides of the proposita's family when she presented with mild gout aged 28 and