Details of disease and treatment in 10 children with Wilms' tumour diagnosed in 1980-2 who were overtreated

Case No	Clinical stage	Prognosis based on histological appearance	Dose of radiotherapy postoperatively (cGy)	Chemotherapy	
				Drugs given	Duration (months)
1	I	Favourable	Unknown	Vincristine	Unknown
2	I	Favourable	None	Vincristine, adriamycin	12
3	I	Unfavourable	3500	Vincristine, actinomycin D	13
4	I	Favourable	2400	Vincristine, actinomycin D	12
5	II	Favourable	3900	Vincristine, actinomycin D, adriamycin	Unknown
6	II	Favourable	3000	Vincristine, actinomycin D	Unknown
7	II	*	3150	Vincristine, actinomycin D	15
8	III	Favourable	3250	Vincristine, actinomycin D, adriamycin	22
9	III	†	2325‡	Vincristine, actinomycin D, adriamycin	15
10	III	Favourable	3000	Vincristine, actinomycin D	14

*Specimen inadequate for histological review, but prognosis originally reported as favourable.
†Histological appearance could not be reviewed as specimen obtained after chemotherapy.
‡Dose of 1675 cGy given preoperatively.

with Wilms' tumour in centres that were not in the United Kingdom Children's Cancer Study Group; the study was of treatment during three years contemporary with the group's first study of Wilms' tumour.

Patients, methods, and results

Patients with Wilms' tumour diagnosed in 1980-2 but not treated in centres in the United Kingdom Children's Cancer Study Group were identified from the population based national registry of childhood tumours. Histopathological appearances of the tumours were reviewed centrally. Ten of the 30 children identified had been entered into the study group's first trial of Wilms' tumour. Of the remainder, 10 had received substantially more treatment than was recommended in that trial (table). Three children with stage I tumours (cases 1, 3, 4) had received radiotherapy. Three with stage II tumours (cases 5, 6, 7) and three with stage III tumours (cases 8, 9, 10) had received more radiotherapy than would have been prescribed in the study group's first trial. Similarly, two children with stage I tumours (cases 2 and 4) and two with stage II tumours (cases 5 and 7) had received more drugs or longer chemotherapy than necessary. The three year survival rate for these 20 children was 65% compared with 82% for the 170 children treated contemporaneously in the study group's first trial or at a paediatric oncology centre (log rank test: $\chi^2=2{\cdot}23$, $p>0{\cdot}1$).

Comment

We found that 10 of the 20 children we studied had received more treatment that we would recommend. Although abdominal radiotherapy is generally well tolerated by children, it has several serious effects. Within the field of treatment growth of bone and soft tissue is decelerated, particularly in very young children. The risk of sterility and second malignancy is also increased,[4] and perinatal mortality and the rate of low birthweight infants are increased in women given abdominal radiotherapy during childhood. Side effects of chemotherapy increase with the cumulative dose.

All children with cancer, including those with a comparatively good prognosis, should initially be referred to tertiary centres for inclusion in multicentre studies. Once the diagnosis, stage of disease, and treatment have been established care can be shared with a nearby paediatric unit. This approach reduces the child's distress and minimises the social, economic, and medical costs of treatment.

We are grateful to all the consultants and registries who supplied information and material for this study; Professor H B Marsden for reviewing the histology; and Professor G J d'Angio for editorial comment. Sue Medhurst and Sheila Giles provided secretarial help. The Childhood Cancer Research Group is supported by the Department of Health and the Scottish Home and Health Department, the United Kingdom Children's Cancer Study Group by the Cancer Research Campaign, and JP partly by the Imperial Cancer Research Fund.

1 D'Angio GJ, Beckwith JB, Breslow NE, *et al.* Wilms' tumour: an update. *Cancer* 1980;**45**:1791-8.
2 Jones PM, Marsden HB, Pearson D. The conclusion of the 2nd MRC nephroblastoma study [Abstract]. *Arch Dis Child* 1983;**58**:653.
3 Stiller CA. Centralisation of treatment and survival rates for cancer. *Arch Dis Child* 1985;**60**:1097.
4 Hawkins MM, Draper GJ, Kingston JE. Incidence of second primary tumours among childhood cancer survivors. *Br J Cancer* 1987;**56**:339-47.
5 Li FP, Gimbrere K, Gelber RD, *et al.* Outcome of pregnancy in survivors of Wilms' tumor. *JAMA* 1987;**257**:216-9.

(*Accepted 19 June 1989*)

Prevalence of antibody indicating Lyme disease in farmers in Wigtownshire

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Br Med J 1989;299:836-7

Lyme disease is caused by the spirochaete *Borrelia burgdorferi*. Its association with erythema chronicum migrans and arthritis has been recognised in the United States since 1975,[1] and the infection is also associated with neurological disease, such as meningitis (acute and chronic) and neuritis (cranial and peripheral). Sporadic cases of erythema chronicum migrans have occurred for many years in Scotland.[2] The vector of the disease in the United Kingdom is the tick *Ixodes ricinus*, which is widespread in Scotland.

Lyme disease was diagnosed in a patient in this practice in association with acute purulent meningitis, during which seroconversion occurred, though the patient's cerebrospinal fluid was not tested for Lyme disease.[3] His complete recovery from an apparently hopeless progressive illness after antibiotic treatment prompted us to survey others at risk in our practice.

Patients, methods, and results

Serum samples were examined from 108 patients aged 15 years and over, 101 of whom were selected because of their potential exposure to ticks. They included farmers, foresters, and gamekeepers. The remaining seven patients were selected because of illness potentially attributable to Lyme disease.

Serum samples were examined initially by immunofluorescence with commercially prepared slides (Lyme disease antibody test system, Zeus). Samples positive for the antibody at titres ≥ 128 were matched with those negative for the antibody from patients matched by age and sex and retested by the microbiology department, Charing Cross Hospital, by a different immunofluorescence test for IgG and IgM antibodies and an enzyme linked immunosorbent assay (ELISA) system specific for *B burgdorferi* antibody.

Twelve patients had antibody to *B burgdorferi*, none of whom were positive for antibodies to *Treponema pallidum*, *Leptospira* spp, or *Listeria monocytogenes*. Eleven patients of the 12 on close questioning had symptoms possibly attributable to infection with

Symptoms and history of tick bites in 12 patients positive for antibody to Borrelia burgdorferi

Case No	Age (years)	Contact with animals	History of tick bite	Antibody to *B burgdorferi*: Titre on immunofluorescent screening	Titre on enzyme linked immunosorbent assay (ELISA)*	Presence of IgG†	Presence of IgM†	Symptoms
1	46	Cattle, sheep	Multiple (recent)	128 256	53	+	–	Generalised stiffness
2	70	Cattle, sheep	Multiple (10-15 years ago)	256 512	92	+	–	Osteoarthritis in both hips
3	65	Cattle, sheep	Multiple (recent)	64 128	33	–	–	Several episodes consistent with erythema chronicum migrans
4	45	Cattle, sheep	Multiple (15 years ago)	64	36	–	–	Eczema, pain in left hip at age 17
5	61	Cattle, sheep	Multiple (10 years ago)	64 128	59	–	–	Recent tiredness
6	52	Dairy cattle	Multiple (>10 years ago)	128	92	+	–	Stiffness in shoulder
7	22	Dairy cattle	None	128 256	59	+	–	Annular skin lesion (Nov 1986)
8	40	Dairy cattle	Once (1980)	64 64	33	–	–	Headaches
9	56	Dairy cattle	Multiple (>17 years ago)	128	43	–	–	None
10	38	Dairy cattle	Once (30 years ago)	128	41	–	–	Pain in chest wall since 1984
11	60	Dairy cattle	None	256	>100	+	–	Deafness, osteoarthritis in hips, cardiac murmur, rash on legs since 1987
12	64	Dairy cattle	Once	64	25	–	–	Granuloma on fingers, osteoarthritis in knees

*Values >20 units indicate positive result.
†+ = Positive result, – = negative result.

B burgdorferi, and only one (case 1) had no relevant symptoms (table).

All of the patients with antibody were farmers, six almost exclusively farming dairy cattle, and the remainder having various degrees of contact with sheep and cattle. They were widely distributed through the practice area. No patient selected because of illness was positive for the antibody.

Comment

Antibody to *B burgdorferi* has been shown to be common in forestry workers in the United Kingdom.[4] In contrast to our results exposure to tick bites in that study was exceptionally high, although immature ticks may be almost impossible to see. Our observations that cattle farmers are at risk confirms the observations of Morgan-Capner *et al*.[5] Presence of the antibody is not always associated with symptoms, nor is it known how long the antibody persists. It is likely to be found coincidentally with other conditions, and positive results should be interpreted with caution.

In our index case C reactive protein concentration closely mirrored clinical state during recovery. This variable is useful in monitoring the treatment of endocarditis, and we believe that further investigation of its use in managing acute Lyme disease is warranted.

Some serum samples gave false negative results in the immunofluorescence kit at the recommended screening titre, though these were reactive at lower titres; further work is needed to judge the best test for screening and for diagnosing active infection.

Lyme disease may cause severe illness, which can be cured by antibiotic treatment. Its high prevalence in our study warrants greater awareness by clinicians and further identification of groups at risk.

We thank Dr D J M Wright and Ms S Cutler, Charing Cross Hospital, London, for the ELISA and the IgG and IgM immunofluorescence testing for antibody to *B burgdorferi* and Dr S Waitkin, Public Health Laboratory, Hereford, for serological testing for leptospira.

1 Steele AC, Malawista SE, Snydman DR, *et al*. Lyme arthritis: an epidemic of oligo-articular arthritis in children and adults in three Connecticut communities. *Arthritis Rheum* 1977;**20**:7-17.
2 Obasi OE. Erythema chronicum migrans. *Br J Dermatol* 1977;**97**:459.
3 Bourke S, Baird AG, Bone FJ, Baird DR, Stevenson RD. Lyme disease with acute purulent meningitis. *Br Med J* 1988;**297**:460.
4 Guy EC, Bateman DE, Martyn CN, Heckels JE, Lawton NF. Lyme disease: prevalence and clinical importance of Borrelia burgdorferi specific IgG in forestry workers. *Lancet* 1989;i:484-6.
5 Morgan-Capner P, Cutler SJ, Wright DJM. Borrelia burgdorferi infection in UK workers at risk of tick bites. *Lancet* 1989;i:789.

(*Accepted 6 July 1989*)

ONE HUNDRED YEARS AGO

The February number of the *Nineteenth Century* contained six articles on the Sacrifice of Education; two by members of the medical profession, and one by Mr. Francis Galton, who gives an answer to the question whether it be feasible to apply tests as to physical capabilities of candidates for public appointments, and whether such results may be taken at a certain value as additions to the examination in mental capacity. For this purpose, Mr. Galton proposes laboratory measurement of the following facts: (1) stature, (2) weight, (3) strength, (4) breathing capacity, (5) reaction time to sight and sound, (6) swiftness of movements, (7) hearing power of right and left ear separately, (8) keenness of sight, (9) colour-sense. Such tests can be conveniently applied without loss of time or much expense, and would probably be of great use in correcting the mental tests of a candidate's fitness for foreign service. Sir Joseph Fayrer, speaking from a long experience as an examiner for the Army, Navy, and Indian Medical Services, says: "It would seem that these rigid examinations, whilst they test the temporary possession by the candidate of a vast accumulation of facts or figures, give no assurance of gradual and progressive training and development of the senses and the higher faculties, and but very little of practical knowledge or aptitude for the application of some small part of that which he has acquired by rote. Competitive examination, no doubt, secures the man who knows most of some subjects; but until it tests mental, moral, social, and physical, as well as intellectual qualities—even if it can do that—it cannot be admitted that it is what it professes to be, a provider of the best men." As to the non-sufficiency of competitive examination to pick out the really best men, Sir Frederick Pollock thinks they might be selected by nomination from among men who have completed with credit some curriculum of study; and he, not inaptly, points out as a significant fact that the Education Department itself is recruited, in its higher branches, not by examination, not even by any limited or modified form of it, but by unfettered personal selection. This mode of filling appointments is very analogous to that used in filling the offices in our hospitals and medical colleges, whose candidates are selected from among Graduates and Fellows of the Royal Colleges. Most people will agree with Dr. Priestley, when he says that, as matters stand with regard to examinations in our own profession, in London at least, what is most urgently needed is a proper union between the teaching and examining, and encouragement to students to acquire knowledge for its own sake, or rather for their own benefit, not simply as the means of passing examinations.

(*British Medical Journal* 1889;i:489)