Paget's Disease in Population Samples. By J. S. Lawrence (Manchester).

The prevalence of Paget's disease was determined radiologically in three Caucasian population samples in the United Kingdom, in three American Indian populations in the United States and Canada, and in one Negro population in Jamaica.

No significant difference was found between the Caucasian and Negro populations, but the American Indians had significantly less, no Paget's disease being observed in the 568 Indians over the age of 54 years in whom routine pelvic x rays were taken.

In the United Kingdom populations the disease was not seen below the age of 45 years. Thereafter the prevalence increased exponentially up to age 74.

The data are consistent with the hypothesis that the disease is initiated by one or more somatic mutations. An osteoclast precursor is suggested as the cell undergoing mutation, and the regulator gene controlling the synthesis of proteolytic enzyme as the affected locus.

Discussion

Dr. V. Wright (Leeds) Two questions, quite unrelated: What is your inter- and intra-observer error?, and what do you mean by somatic mutation?

Dr. Lawrence I have not made an assessment of the inter-observer error, but these x rays from various surveys were mixed together and read blind by one observer, so only intra-observer error is involved. The correlation coefficient for two readings by this observer was \( r = + 0.83 \), so it is unlikely that observer error played an important part.

By somatic mutation I mean an error in replication of the DNA molecule occurring during division of a somatic cell. This might be a gross error, such as a deletion or duplication of part of a chromosome, or it might be limited to one nucleotide pair. In either event it gives rise to a clone of abnormal cells if the mutated cell is viable.

Dr. J. H. Glynn (London) I did not know until recently that Paget's disease could be familial, but I have come across a family in which three sisters definitely suffered from it, and a brother was reputed to be affected. I would therefore like to ask how common is this familial aggregation and how it affects your interpretation of data from population surveys?

Dr. Lawrence There have been very few reports of family studies and there have been no formal surveys of Paget's disease in families, but there are some very striking family reports. I think my findings of the difference between American Indians and Caucasians suggests that there is a racial difference in predisposition and that would fit in with a genetic hypothesis. A genetic influence on somatic mutation has been postulated though not proved.

Dr. A. St. J. Dixon (Bath) Dr. Lawrence has outlined some of the fascinating aspects of the natural history of Paget's disease, such as the sharp demarcation line which is sometimes seen between advancing Paget's and normal bone, and its inability to cross the joint. There is one crucial experiment to which perhaps members of the Society might be in a position to persuade some of their more co-operative patients to submit, i.e. cross-grafting segments of fibula between an affected and a normal side. The fibula after all is one of the few disposable bones we have. If we were able to cross-graft a bit of 'Pagety' fibula from one side and put the normal piece in the gap on the other side, one of three things might happen (supposing the graft actually took). The normal bone would begin to colonize the Pagety bone, or the Pagety bone would begin to colonize the normal bone, or they might both just stay as they were. Whatever happened, the answer would be very interesting.

Prof. J. J. R. Duthie (Edinburgh) How does Dr. Lawrence explain the action of calcitonin on his theory?

Dr. Lawrence I should think that the action of calcitonin (which reduces the serum alkaline phosphatase) is to inhibit bone resorption and so reduce the need for new bone formation. Alkaline phosphatase is concerned with bone construction rather than with bone destruction.

Physician’s Assessment of Functional Overlay. By E. N. Coomes (St. Mary Abbots Hospital, Kensington, London)

In hospital practice it is always difficult for the doctor to assess the degree of functional overlay in his patients; the usual criteria used are imprecise and often seem strangely anachronistic. The purpose of this study was to determine the correlation between two physicians' ratings of functional overlay and certain psychological test scores, and also the types of complaint most likely to lead the physician to make a diagnosis of functional overlay.

143 consecutive patients were assessed and the physician's estimate of the degree of overlay was rated at 25, 50, 75, and 100 per cent. Before history-taking and examination, each patient completed an Eysenck Personality Inventory questionnaire and a Cornell Medical Index. There was a good correlation for neuroticism between the two forms, but the physicians' assessment differed considerably. We also analysed the type of patient which each of us picked out as showing functional overlay; certain differences were found between the two observers.

Discussion

Dr. V. Wright (Leeds) We have been studying periarthritis of the shoulder using these indices to quantitate the 'periarthritis personality', but one of the hardest problems is to find a 'normal' group. Another experiment that we have been meaning to do but have not yet done (and I wonder if you have) is to repeat the inventory at a later date, especially after the patient has improved. Do follow-up studies show an alteration? In other words, are we measuring something which is a result of the disease rather than something which is the background to it? And a third point, do you make provision for finding out the liars? I wonder how many of those you have.

Dr. Coomes In answer to the first question: how to find a normal group? Eysenck has gone into this on a