

Editorials

RADIOLOGY AND THE FAMILY DOCTOR

“ The evil that men do lives after them . . . ”

The powerful instruments and remedies with which we are armed in our fight against disease are not unmixed blessings: constantly to watch for unexpected ill-effects is a duty which needs no particular emphasis here. Allergy to penicillin and other drugs, the somatic changes wrought by such hormones as the oestrogens and cortisone, the renal damage and blood dyscrasias caused through improper use of the heavy metals, the neutropoenia from certain synthetic compounds are but a few examples well known to all.

Some of the armament we use has become so much a part of our daily life, that we do not always treat it with the respect that is its due. The writing of a request for an X-ray examination would seem a wise and wholly beneficial act. The dangers inherent in even this simple diagnostic procedure were brought to our attention by a request from a correspondent in Queensland for information on the long-term effects of diagnostic radiology. He was, he said, concerned at the amount of exposure to which patients were liable to be subjected under the conditions of modern medical practice, and wondered whether some form of investigation could be devised to find out what was happening. Part of the answer to this question had, in fact, already been published in June of last year by the “ Committee appointed by the Medical Research Council to report on the hazards to man of nuclear and allied radiations ” (The Himsworth Committee)¹. This report considered all the possible hazards from radiations to which man might conceivably be subjected and is worthy of study by those who are interested. The paucity of what they describe as “ available evidence,” and the difficulty of collecting “ available data ” has led them to be somewhat cautious in the presentation of their findings. The individual may be affected by massive dosage either accidentally, or deliberately, as in therapy, in ways with which we are all familiar: the X-ray burns, the systemic X-ray sickness, the neoplastic changes and the damage to bone marrow are instances. Smaller doses administered over a longer period may be stored in the bones, particularly in the form of the isotope strontium 90, and cause the development of bone tumours. Even smaller doses spread over years may, in theory, affect the germ cells, give rise to mutations in the genes and cause damage to future generations.

Fortunately, there is no likelihood that the amount of radiation at large will ever rise to a quantity capable of causing any genetic effect. Furthermore, an enquiry amongst American radiologists was equivocal in its findings.

An enquiry into the incidence of leukaemia and aplastic anaemia in patients treated with X-rays for ankylosing spondylitis, sponsored by the Medical Research Council committee, revealed that 49 of the 13,352 patients whose case records were studied had developed leukaemia, aplastic anaemia or myelofibrosis. The expected number of deaths from these conditions, in this group, was 3.1—a very significant difference.

Evidence continues to accumulate; individually each investigation may not carry complete conviction but all the shreds of evidence point the same way. Abbatt and Lea², following up the work of Court Brown and Abbatt (1955)³, have examined the records of the Ministry of Pensions and National Insurance, of all cases of men who had served in the Forces since 3rd September, 1939 and had been pensioned for ankylosing spondylitis before 31st December, 1952. They collected 1,627 records of men who had been treated by radiotherapy, and 399 who had not been irradiated. The expected deaths from leukaemia in the treated cases was 0.33 whereas 7 were found: in the untreated cases 0.17 deaths were expected and none found. The odds against this excess of deaths being due to chance were greater than 1,000,000 to 1.

Three months after the publication of the Medical Research Council blue book, Dr. Alice Stewart and her co-workers in the Department of Social Medicine at Oxford published an interim report on "Malignant disease in childhood and diagnostic irradiation in utero."⁴ This commendably short report—it occupies only one page of the *Lancet*—is a model of what a field study should be, and demonstrates how valuable a retrospective investigation based on notifications (in this case the statutory certification of deaths) may be. "Public health departments all over the country are engaged in an environmental survey which will eventually cover some 1,500 children who died of leukaemia or malignant disease before the age of 10, in the years 1953 to 1955." The survey covers the whole of England. So far a third of the case material has been gathered, but preliminary analysis has yielded results which, the authors feel, should be reported without further delay: and we agree. Though their present findings are based on only 547 cases, they show that, of 269 who died of leukaemia, 42 of the mothers had had antenatal X-ray examinations of the abdomen, compared with 24 of the control group; out of the 278 who suffered from "other malignant disease," the irradiated group total was 43, compared with a control figure of 21. These are significant figures.

A very real responsibility will henceforth rest on the doctor who initiates the antenatal, radiological examination of his patients. There are times when such procedure is undoubtedly necessary; to the experienced general-practitioner obstetrician, however, these occasions should be few. We suspect that it is the pardonable desire to leave no diagnostic stone unturned that brings so many patients to the cold comfort of the X-ray couch.

The story does not end here. The Medical Research Council's committee states:—

“The greatest contribution in this country to the increased exposure to radiation comes from medical diagnostic radiology, the application of which has been steadily increasing in amount and scope in recent years. A large proportion of the genetically significant dose derived from diagnostic radiology is contributed by relatively few types of examination, of which fluoroscopic and radiological examinations of the female pelvis and examinations of the hip joint and lumbar spine of males are important examples. Clearly, the small genetic risk to the community and to individuals must be weighed against the possible great advantage and even necessity of the radiological examination to the particular patient. The final decision must be made on medical grounds.”

The decision in the first place often rests with the general practitioner. Faced with the importunate demands of his patients, and with the fear that the omission of an X-ray examination may be thought to be evidence of negligence, this decision may be difficult to make. The whole training of a doctor has led him to believe that a complete diagnosis requires the investigation of the patient by all the means at his disposal; yet half the satisfaction is in arriving at a bedside diagnosis which, if confirmed by subsequent events, becomes one of those experiences that make our work so satisfying.

Now that more and more radiological departments are being opened to the family doctor, our responsibility becomes greater. Evidence from “open” departments shows that there is no abuse of these new benefits. In the area of the Manchester Regional Hospital Board one or more X-ray departments are open to general practitioners in every hospital centre⁵. The volume of work carried out on behalf of family doctors in 1955 was between 10 and 11% of the total work. In the radiological unit at Derbishire House Health Centre, Manchester, which deals only with the simpler diagnostic procedures, the number of examinations made by the four doctors using the centre was 1,507, of which 301 yielded positive reports. This may be claimed a reasonably satisfactory standard of proficiency.

Those using radiological apparatus must assure themselves that the machines and the techniques they employ are as safe as it is possible to make them. The Himsworth report stated that the time had arrived for a review of the present practice of diagnostic radiology. Acting on this recommendation, the government has set up a

committee, under Lord Adrian, to consider how the number of X-ray pictures taken of the population may be limited, without depriving the patient of a valuable aid towards his medical treatment. We, however, do not need to wait the committee's report: with such convincing evidence before us we should review our diagnostic habits, and eschew over-indulgence in an aid which, on analysis, may often prove to be an unnecessary refinement.

REFERENCES

- ¹ The Hazards to Man of Nuclear and Allied Radiations, 1956, H.M.S.O., London.
- ² Abbatt, J. D., Lea, A. S. (1956) *Lancet* 2, 1318.
- ³ Court Brown, W. M., Abbatt, J. D. (1955) *Lancet* 1, 1283.
- ⁴ Stewart, Alice, et al. *Lancet* 2, 447.
- ⁵ Manchester Regional Hospital Board: Abstract of Statistics for 1955.

BETWEEN OURSELVES.

Under this title the Research Committee of Council have during the last year issued a periodical news sheet to members of the research register. This communication, which is of a private nature and for internal circulation only, is intended to keep members who are interested in research informed as to what is going on in this field of work. Since the *Research Newsletter*, which was originally devised to undertake this work, has become the official organ of the College and been offered for sale to all those who may be interested, the need for a second journal to carry information of a more private nature has become apparent. The work of production has been undertaken by Dr. W. G. Tait, Western Elms Lodge, Reading, Berks. It is necessary to emphasize that *Between Ourselves* is circulated only to members of the research register. The research register is, however, open to all members and associates who are interested in carrying out or helping in research and application for inclusion in the register should be made to Dr. A. Watts, The Limes, Ibstock, Leicester.

Foundation members will remember that the register was started by the foundation council as a method of facilitating contact between practitioners whose interests were similar. Through the register, not only can the research committee discover who are interested, but individual members can learn from it who, amongst their colleagues, are interested in similar kinds of work. It is an attempt to break down those walls which the isolated practitioner tends to build around him in the course of work which, by its nature, is individual and complicated.

As an example of how *Between Ourselves* can help the research worker we would refer readers to the account of the projected work of the North London Faculty on the association of neurosis with