

It was concluded that ovarian x-radiation, even in small doses, contributes somewhat to the risk of chromosome defects in subsequent pregnancies.

FOURTH SESSION (Chairman: PROFESSOR A. L. COCHRANE)

Association between Malignant Disease in Children and Maternal Virus Infections during Pregnancy. J. F. BITHELL, G. J. DRAPER, and P. D. GORBACH (*Department of Social Medicine, University of Oxford*)

An early report from the Oxford Survey of Childhood Cancers suggested the possibility that virus infections during pregnancy might be associated with childhood cancers. A recent paper by Fedrick and Alberman has shown a striking relationship between influenza during pregnancy and some forms of malignant disease in children born of these pregnancies.

Data from the Oxford Survey now include interviews with more than 9,000 mothers of children dying from malignant disease and a similar number of mothers of matched controls. These include a substantial number of reports of virus diseases during pregnancy, and there are significant case excesses for influenza (98 : 64) and chicken-pox (7 : 0).

The trimesters in which the case mothers reported influenza do not differ significantly from those in which the control mothers did so. When the pregnancies were classified by whether or not they overlapped known influenza epidemics, it was found that 26 cases and 11 controls overlapped that of 1957-58. The differences in the case-control ratios were not, however, significant.

Examination of the diagnosis of the seven cases in which the mother had had chicken-pox revealed that there were three cases of lymphatic leukaemia, three of medulloblastoma, and one of Wilms' tumour.

Monthly birth cohorts were analysed for children developing neoplasms of the lymphatic and haematopoietic tissues, and an attempt was made to relate the rates to the monthly incidence of influenza in the population, as measured by mortality and by sickness absence claims from all causes (claims due to influenza specifically not being available on a monthly basis). A model was used which should detect effects due to risk in different months of pregnancy. No significant results were obtained, and it is suggested that the association reported by Fedrick and Alberman was largely fortuitous and due to the fact that the figures were grossed into annual rates.

Fedrick, J., and Alberman, E. D. (1972). *Brit. med. J.*, 2, 485.

Preliminary Report on Research into Behavioural Factors Influencing the Risk from Coronary Heart Disease. L. BARIC and D. WILKIN (*Department of Social and Preventive Medicine, University of Manchester*)

The study examined three risk factors related to coronary heart disease—cigarette smoking, obesity, and lack of exercise. It included two population surveys, one exploratory survey of a small number of general practitioners and a survey of all GPs in Salford, and an intervention study. The main aims of the study were to examine local health authority health check-ups, opinions of GPs and the general public about risk factors, and the

role of the GP in the dissemination of information and behavioural change.

It was found that a large proportion of GPs rate the risk factors important in relation to coronary heart disease, and that the general population perceive these risk factors as a danger to health in a generalized manner. However, it was found that there was a large discrepancy between the proportion of GPs rating them important in relation to coronary heart disease and the proportion of the population associating them with heart disease.

GPs were aware that many of their patients did not know of the connection of the risk factors with coronary heart disease, and considered it their own responsibility to inform them. The findings relating to source of information concerning risk factors indicate that GPs are not at present doing much to remedy the situation.

A number of follow-up studies are being planned to examine various aspects of the problems raised in this study.

Sudden Death and Water Quality. MARGARET CRAWFORD and D. G. CLAYTON (*Medical Research Council Social Medicine Unit, London School of Hygiene and Tropical Medicine*)

This investigation is based on all deaths in 1970 of persons aged 30 to 59 in 12 towns of England and Wales, six with hard and six with soft drinking water. Information on terminal episode and previous medical and residential history was obtained from the certifying doctors and coroners for all deaths certified to cardiovascular disease.

The death rates for cardiovascular disease and ischaemic heart disease were 50% higher in the soft water towns. The proportion of ischaemic heart disease deaths in men which were 'sudden' (terminal episode less than 1 hour) were 40% in the soft and 32% in the hard water towns; this difference is statistically significant ($P < 0.005$). Deaths of persons with a history of a previous infarction were more common in the hard water towns, and deaths in the first episode of the disease were slightly more common in the soft water towns. The greatest difference between the two groups of towns was in the 'sudden' deaths in the first episode, the soft : hard ratio being 2.64 : 1. This group forms one-fifth or less of the deaths but accounts for nearly half of the difference in the rates. The 'sudden' deaths do not explain all the difference in death rates between the soft and the hard water towns.

The 1952 Fog Cohort Study. R. E. WALLER, A. G. F. BROOKS, and M. W. ADLER (*MRC Air Pollution Unit, St. Bartholomew's Hospital Medical School, London, and Department of Clinical Epidemiology and Social Medicine, St. Thomas's Hospital Medical School, London*)

The results of several studies carried out in Great Britain during recent years have suggested that exposure when very young to urban air pollution may have a lasting effect on the prevalence of respiratory disease in childhood and perhaps in later life. Such effects may result either from extended exposure to moderate levels of pollution or from occasional exposures to

periods of high pollution. In an attempt to throw some light on this the opportunity has been taken to study a sample of adolescents now living in London who were born around the time of the disastrous London fog of December 1952.

In the first phase of the study (1970-71) 800 subjects born in 1952 were seen at an average age of 18½, then in the second phase (1971-72) a similar sample drawn from the same areas but born in 1953 was seen, again at age 18½. The MRC questionnaire on respiratory symptoms was used, with additional questions on the home environment in early life, and measurements of FEV, FVC, and PEF were made.

A preliminary analysis of the results has not revealed any consistent differences in respiratory symptoms or ventilatory capacity between subjects born before the London fog and present at the time, and those born just after it. Both groups were subjected to the high levels of pollution that existed in London throughout the 1950s, and the prevalence of respiratory symptoms is higher than has been reported from 'clean' areas.

The results are also remarkably uniform with respect to areas of residence and social class of family, but the prevalence of respiratory symptoms is much higher in subjects who smoke than in those who do not, even though smoking histories are short.

FIFTH SESSION (Chairman: SIR JOHN BROTHERSTON)

Twins as Markers of the Value of Obstetric Radiography. ALICE STEWART (*Department of Social Medicine, University of Oxford*)

A study of the twin pregnancies included in the 1958 survey of the National Birthday Trust has confirmed associations between obstetric radiography and first births, assisted deliveries, and pregnancy illnesses. Over 80% of the mothers were delivered in hospital, and the proportion of stillbirths and neonatal deaths following x-ray examinations (61%) was below average for the babies weighing less than 6 lb and above average for the heavier babies.

The babies who were born in hospital did better (with 92% of survivors and relatively few deaths from atelectasis and during labour) than the other babies (with 89% of survivors and relatively few deaths from head injuries). But where there were labour complications the x-rayed pregnancies did worse than the non-x-rayed ones because the low rate of stillbirths during labour which characterized the forceps deliveries was more than offset by a high rate of neonatal deaths from head injuries.

A high frequency of x-ray examinations and hospital deliveries in a nation-wide sample of twin pregnancies was indicative of a high standard of medical care, which has proved to be more successful in relation to small babies and atelectasis than in relation to large babies and head injuries.

Death from Hyperplasia of the Prostate. VERA CARSTAIRS, M. A. HEASMAN and BRIDGET LOWE (*Scottish Home and Health Department, Edinburgh*)

Data were examined for all patients discharged from hospital over a period of three years with a diagnosis of hyperplasia of the prostate and treated in either a general surgery or a urology unit. These numbered 9,986 and there were 376 deaths. The death rate was 5.0% for patients treated in general surgery units and 2.3% for those treated in urology units. The characteristics of patients who seemed to be most at risk of dying were: older patients; admitted as emergencies; not operated on; with an associated diagnosis not involving the urinary tract. The percentage of high-risk patients was higher in surgery than in urology units but standardized rates showed that this did not account for all the difference observed in the overall rates. In hospitals the death rate varied from 0% to 13.6% and for consultants from 0% to more than 20%. Only one urologist had a death rate over 5% while 52 of 110 general surgeons had death rates of this order, although some of these treated very few patients. In hospitals where there were both surgery and urology beds, over 50% of patients were admitted as emergencies, compared with only 14% in urology. It is suggested that there is a case to be made for urologists treating a higher proportion of the high-risk cases and that thought should be given to methods of selecting patients to this end.

Emergency Admissions to Hospital from a Deputizing Service: a Controlled Study of Length of Stay and Outcome. B. T. WILLIAMS, R. A. DIXON and J. KNOWLEDEN (*Medical Care Research Unit, Department of Community Medicine, University of Sheffield*)

The duration of stay and outcome of admission of 459 patients referred to hospital as emergencies by a deputizing service in 1970 was compared with that of a control group of 1,244 emergency admissions arranged by other doctors during the periods when the deputizing service was operating. Satisfactory control was achieved for age, sex, marital status, specialty, and diagnostic grouping.

Similar proportions (12%) died in each group though death tended to be earlier among the deputizing service's referrals. Of those discharged alive, similar proportions of deputizing service referrals (27%) and referrals from other sources (25%) had left hospital after three days.

These findings do not support the hypothesis that patients referred for hospital admission by a deputizing service are less ill than patients referred by other doctors.

Assessment of Workload by Patient Dependency Studies and Activity Sampling with Identification of the Contributory Factors as a Guide to Organization and Management. HELEN HOWARTH (*Department of Social and Preventive Medicine, University of Manchester*)

The work load of a ward is affected by the age and sex of the patient, the day of stay, the diagnosis, and the transfer of the patient but primarily the policies and the work load of the consultant have the greatest effect.

A patient dependency study of 2,234 patients was carried out over a six-month period in an ophthalmic hospital in conjunction with an observation survey of staff deployment. A computer was used for the patient