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Reports of Successful Research Activities: Cancer and Cancer Chemotherapy

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The purpose of this report is to describe the development, the need, and the management of a cancer program in a community hospital with a large referral service and an affiliation with the University of Michigan Medical School.

THE HOSPITAL

The hospital is a 520-bed institution with 19,000 admissions annually and an emergency service seeing 24,000 patients each year. The staff is comprised of 190 physicians representing all specialties, and 35 physicians in medical and surgical specialties who have offices in the hospital and are geographically full-time to that institution, as well as a comprehensive pathology group, an x-ray department, a radioisotope service and a complete medical records section. The hospital is affiliated with the University Medical School which provides consultation, a postgraduate training program, visiting lecturers, rotation of some residents and medical students, and many externs during free periods of the medical curriculum.

Each year there are approximately 600 to 800 new cases of malignant disease diagnosed and treated at the institution. The overall staff participation in the diagnosis and treatment of cancer is inspected and

approved by the Cancer Committee of the American College of Surgeons, supported also by the American College of Physicians. This program requires the full cooperation and approval of the medical staff.¹

THE MEDICAL STAFF

The medical staff functions are organized under the direction of the cancer committee appointed by the executive committee of the hospital to include representatives of the major departments. The committee supervises the tumor registry, the tumor conference and cancer education program of the hospital, as well as the cancer fund. The secretary of the cancer committee serves as the fulltime secretary in charge of the tumor registry, which maintains current data, abstracts and follow-up of each patient. This data is available at any time to the staff, and regular meetings of the cancer committee are held to inspect the abstracts for completeness and accuracy. Advice in maintaining the tumor registry is obtained from the American Cancer Society and the secretary attends an annual workshop.

Tumor conferences are held each month as one of several combined

conferences on the training schedule, with lectures on specific subjects and visiting speakers. Cancer educational booklets and material are also provided to the school of nursing as needed. A cancer fund is maintained from personal donations and support of the local chapter of the American Cancer Society, which provides a means to continue treatment in near indigent patients or hardship cases.

THE CANCER CHEMOTHERAPY PROGRAM

During a 15-year period, the importance of cancer chemotherapeutic control of many patients with malignant disease has increased. There are currently available to all physicians a number of proven helpful drugs. The knowledge of the indication, the usefulness, and the toxicity of these drugs is important for every physician to know and equally important is the clinical decision as to which patient should be selected for cancer chemotherapy and when the treatment should be started. By definition, cancer chemotherapy in its present state is the oral, intravenous or intra-arterial administration of chemicals and drugs to patients with regional or disseminated malignant disease in order to produce remission or palliation. Five year remissions or possible cures have been induced in an occasional woman with choriocarcinoma or a child with acute leukemia or Wilm's tumor.²

Perhaps as many as one-third of the patients seen today at the time of diagnosis of cancer are candidates for chemotherapy. This has meant a great deal to patients and physicians in managing what a few years ago was considered a completely hopeless situation with patients turned away from the hospital. These patients are no longer relegated to the false cancer cures or to the high cost of dubious treatments.

The management of the patient receiving cancer chemotherapeutic drugs by various routes of administration requires close supervision of nursing and house staff. Management can be augmented considerably by having the service an efficient semi-intensive specialized care area. Centralization improves staff training and is particularly advantageous during the use of catheter infusions given by pumps and slow intravenous drips, which often are maintained on an around-the-clock basis. Morale of the patients, or of the staff, on this type of ward has not been a problem; in fact, the opposite is true. Our patients request re-admission to this area and are quite disappointed if the beds are filled. An additional advantage in this type of service is a close proximity of the doctors' offices, outpatient examining rooms, and a special hematology laboratory to maintain the needs of this group of patients.

Many new drugs are evaluated on a chemotherapy service and a day-to-day flow sheet of drug dosage, response, weight, performance status,

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¹American College of Surgeons' pamphlet on Cancer Programs in Hospitals, *Manual for Cancer Programs*. American College of Surgeons, 40 E. Erie St., Chicago, Illinois, January, 1961.

²Korst, D. R., *Cancer Chemotherapy: The Importance Of Selection Of The Patient*. Accepted for publication, *Michigan Medicine*, September, 1964.

and laboratory data is maintained, for a close continuity between the inpatient and the outpatient management. In addition to evaluation of new drugs, there are new methods of administration such as intra-arterial catheterization and slow infusion apparatuses that can be investigated on such a service. Also under study is a hospital pharmacy control of all new drugs. These types of investigation may be in cooperation with the Cancer Chemotherapy National Service Center of the National Institutes of Health, many pharmaceutical companies, or cooperative medical study groups and provide means of reporting to medical meetings and the medical literature. In addition, an organized observation on a group of patients provides improved data on survival and on the natural course of malignant disease, which is a much needed type of clinical research.³ Criteria of response to treatment and principles of care in cancer chemotherapy have been obtained as a result of the clinical investigation on our service.²

THE CLINICAL RESEARCH PROGRAM

Members of the house staff in medicine and surgery are encouraged to carry out projects under supervision of interested members of the

attending staff. The most stimulating project that can be carried out in the type of hospital described in this report is that of carrying directly to the problem discussed and seen at the patient's bedside. Following the discussion, an idea is born and this is formed into a research protocol. The protocol is then submitted to the hospital research committee, composed of interested members who offer advice, approval, and provide funds for the study. The problem goes into the laboratory experiment involving small animals or dogs. Following this work, the experiment is reported at a medical meeting and final publication is submitted. The eventual outcome of this form of clinical research is the application and benefit back at the patient's bedside. This is truly clinical research and is much needed today in the complex and varied forms of research encompassed under the broad title of medical research.

The clinical research project should be kept quite separate from the many very basic projects involving expensive equipment, large laboratory staffs, and an entire approach at the cellular level. The clinical research projects can be carried out by young investigators at the clinical level who are primarily participating in the practice of medicine and surgery. For example, two such projects carried out at our institution arose from clinical discussions, then carried to the laboratory, and finally back to application resulting in changes and improvements in medical treatment as noted in references 4 and 5.

³Korst, D. R., Clifford, G. O., Fowler, W. M., Louis, J., Will, J., Wilson, H. E. Multiple Myeloma II. Analysis of Cyclophosphamide Therapy in 165 Patients, *J. Amer. Med. Assn.*, September 7, 1964.

ences 4 and 5. Both of these projects were carried out to publication and application by two members of the house staff.

Support for projects is obtained through the hospital research committee which is supported by contributions from members of the staff and the community, by support from pharmaceutical firms who wish to evaluate new drugs in our institution, and several grants from some local societies (e.g., Michigan Heart Association). Our investigators are provided a small amount of funds for travel and illustration, secretarial help, and the major portion of the support goes to maintaining animal laboratories for the projects. Support from large granting agencies such as National Institutes of Health has not been obtainable as most projects are small, involving a limited number of personnel that can be carried out in one to two years, and are considered pilot projects.

The magnitude of the projects carried out at our type of institution is important and provides vital spokes in a large wheel of advances in clinical research. However, each individual project is probably not of a nature to gain major support from large granting organizations. Perhaps the record of these small projects could be combined under the

general research program of the hospital which, in turn, might be supported by a granting agency on an annual basis as long as the program is productive. A program support of this type would be most feasible for our own institution where the research committee is in a position to promote and support individuals, but where one individual's efforts would probably not be of sufficient stature or where he would not have sufficient time to devote to a project, to warrant a large individual grant. Each year it is getting more and more difficult to raise funds from the community. It has been particularly more difficult to raise funds from the pharmaceutical associations in the past year or two and therefore support from large organizations is going to be imperative to continue good clinical research programs in the community hospital.

Space has not been critical, but the major expense of our program has been maintaining areas in the hospital and in surrounding buildings for such purposes. We maintain a dog laboratory, which doubles in teaching (e.g., dog surgery to medical students and residents), and we maintain a small animal laboratory for mice, rats, etc. These areas require air conditioning, daily maintenance and constant supervision, whether or not a project is in progress and thus represents the major cost of the program. The hospital staff has been most cooperative in allowing use of clinical facilities for research which includes the radioisotope laboratory, the x-ray department

⁴Diethrich, E. B., Campbell, D. A. and Korst, D. R. "Tissue Tolerance and Systemic Toxicity of 5-Fluorouracil, External Radiation and the Combination of Drugs and X-ray." Accepted for publication, *Surgery*, 1964.

⁵Tipton, J. B., Regan, W. J. Effect of 5-Fluorouracil On The Adrenalectomized Animal. *Surgery*, 53:495-499, April, 1963.

ment and the cardiac catheterization unit. We have not found that the program requires expensive items of equipment, but that much of the equipment used in a specialized referral community hospital can double very adequately in a clinical research program.

Future support of clinical research programs is necessary in order to maintain the development of good ideas in clinical medicine that benefit many patients. Support is also necessary to maintain an inquisitive attitude on the part of the house staff and attending staff in a large teaching program, and it is very important in augmenting the training program in postgraduate medicine

that is becoming a major responsibility of the community teaching hospital.

SUMMARY

The community teaching hospital affiliated with a university is growing into a major postgraduate teaching and clinical research activity. The development of a cancer program serves as an example of one facet of this growth, emphasizing the contributions to quality medical care, scientific advancement, and the medical profession. Support of growth in research and teaching activities to the large community-teaching hospitals must be considered to maintain good programs.

Medical Missionaries in Peru and Bolivia Organize

English-speaking missionary doctors, nurses, and medical technicians and personnel from seventeen different religious congregations, the Papal Volunteers and Catholic Families from Latin America working in Peru and Bolivia recently met in Chusacoma, Puno, Peru, to discuss their problems, exchange experiences, and to meet those who work in the health field. This religious apostolate gathering brought together missionaries from the arid coast of Peru, the high Andean Sierras—the “altiplano” of Peru and Bolivia, from the dense jungle of the Peruvian Amazon and the Bolivian tropics. They work in or staff parish clinics, government health posts, public and private hospitals, and nursing schools.

Several papers were read and panel discussions held. Representatives from the WHO, the Peruvian health ministry, the Peruvian Red Cross, and members of the clergy spoke before the group during their three-day seminar. Special emphasis was given to public health work, social and economic factors affecting the health apostolate, nursing education, and the role of the medical workers in the missions today.

A result of this meeting is the formation of an organization—The Conference of Health Service Personnel—for the mutual education, renewal and development of the apostolic spirit of its members; for the deepening of their understanding of the people for whom they labor, and for the opportunity to plan together to better develop the Christian Apostolate.

Due to the success of this meeting, plans are being made for another in October of this year, to be held in Arequipa, Peru. Those interested in this meeting and this organization can contact:

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