Around Europe

Clinical Medicine and Research in Italy

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Introduction

Eighteen years ago I had the good fortune to marry an Italian, acquiring at a stroke a family with branches in several parts of the country and a permanent excuse for visiting the homeland of Galileo and Leonardo da Vinci. Since then I have become involved with the illness of Italian relatives and friends, and so have seen much of their medicine through the eyes of the consumer. Last November I visited Italy again, this time sponsored by the British Council, with the express purpose of learning more about Italian clinical practice, medical training, and research. The visit was one of a series that the Council is organizing to our European partners to discover how interchange with Great Britain can be made easier; visits by Dollery and Burn to France,¹ Kerr to Germany² and Emerson and Lewis to Belgium and the Netherlands^{3,4} have already been reported.

My itinerary included Naples, Rome, Pisa, and Milan (the four most important medical centres) and the smaller centres of L'Aquila and Perugia. I was greeted with great friendliness and hospitality everywhere. My hosts seemed anxious that their medical systems should be fully understood and publicized, "warts and all." My Italian is less than adequate, and English was the main language of discussion; it is well understood by most senior and middle-grade men, but not by most newly qualified doctors, for whom a nearly instantaneous translation was often performed by a colleague.

Superficially it is easy to point to similarities between Italy and the United Kingdom. The areas of the two countries are similar and the populations are almost identical (55.5m. in the United Kingdom, 54m. in Italy in the 1971 census). Yet there are profound differences in medicine which are closely related to differences in society and public life. Italy is one of the least centralized countries in Europe, with regional centres still maintaining traditions of the renaissance city state. Rome is the largest city and the centre of government, but it is not the chief city in terms of commerce, the arts, and intellectual life. It has little influence on medicine in the rest of Italy, chiefly because there are few national organizations equivalent to the British Medical Association and the royal colleges which would normally have their headquarters in the capital. Variations in medical practice between different centres are greater than in the United Kingdom, and movement of doctors between different cities is unusual—most hospital doctors work in or near the city where they trained.

Politics have more influence on medicine than in most other European countries. The political unrest in 1968 forced the universities to abandon qualifications for student entrance, a step which has inevitably led to lower standards of gradua-

tion and postgraduate diplomas. In medicine a consequent lowering of educational standards has caused grave disquiet to Italian medical teachers.

In the last few weeks the government has proposed sweeping new changes,⁵ including the abolition of the *mutua* system described below, the introduction of a national health service, selection of medical students according to a fixed regional quota, and supervision of the pharmaceutical industry to curtail the sale of ineffective medicines—measures which it intends to introduce during the five years starting in 1975. These are hardly novel features to British graduates, but if successfully introduced would have profound effects on Italian medicine, and much of this article would no longer hold.

Medical Care

Italy has no National Health Service, but most of the population must subscribe to one or other "*mutua*"—independent health insurance schemes for different categories of employee, most of which are subsidized by the Government. They all employ their own panels of general practitioners and specialists, and some *mutua* have their own laboratories. The largest scheme is I.N.A.M. (Istituto Nazionale Assicurazione Malattie), which is responsible for about 75% of the insured population.

Doctors working for the *mutua* are paid either by item of service or by capitation fee (varying from *mutua* to *mutua*, and with some differences between the provinces), and, as in our own Health Service, there is little financial incentive encouraging good medical work. Theoretically the public have less choice of doctors than in this country, for, unless a patient decides to visit a doctor privately, he has to choose a practitioner from the list of those who work with the *mutua* which holds the contract with his employer. In practice, there is little difference between the two countries in freedom of choice, as the majority of British patients do not exercise their rights in this matter, and the lists of the major Italian *mutua* are extensive.

One effect of the *mutua* system is to discourage referral of patients to hospital, unless inpatient treatment is clearly indicated, in which case it will be paid for by the *mutua*. Outpatient departments play much less part than in British hospitals, for the *mutua* clinics deal with patients who are not ill enough to require treatment in hospital, and the *mutua* will not pay for outpatient treatment in a hospital except for illness they are clearly unable to manage—such as maintenance haemodialysis, long-term cardiac pacing, or some forms of long-term rehabilitation or physiotherapy. Undoubtedly this system has disadvantages for the patient, for even in the largest cities it is impossible for each of the *mutua* to have specialists and laboratory facilities with as wide a scope as those in the civil or university hospitals. Nevertheless, because the system forces patients to use their own *mutua* practitioners, it discourages the excessive reliance on hospitals which is a feature of the British N.H.S.

Medical Schools

Italy has 27 medical schools, including three in Sicily and two in Sardinia; the United Kingdom has 28. But about 9,000 doctors graduate each year in Italy—three times the number emerging from British schools. With the exception of two medical schools which are not run by the State, Italian medical schools do not have a fixed annual entry ("numerous clausus"). Since 1968 it has been possible for anyone who has had 13 years of schooling to enter medical school, regardless of ability or the actual instruction he has received. Classes are, therefore, very large, and vary from year to year. Recently 6,000 students entered the medical school in Naples. This is the largest estimate I heard, but entrance classes of 1,500 to 2,000 are very common. A few medical schools accept large numbers of students from overseas, particularly the Middle East and the U.S.A.

The medical course normally lasts six years, the first three comprising the premedical and preclinical subjects taught in the United Kingdom, and the second three-year period being devoted to clinical subjects. Students must complete the study plan of each year before they proceed to the next, but attendance at classes, clinics, and lectures is not compulsory. The teachers I talked to admitted that many students stay away from classes, indeed the recent increase in the numbers enrolled means that some departments cannot function properly unless a proportion of the students registered fails to attend.⁶ Clinical work is theoretically obligatory—for example, four hours a week in the University of Milan and 15 patients examined fully in the whole clinical course in the University of Naples—but it is extremely difficult to enforce regulations because of the large number of students. I was told that in practice it would be possible, though rare, for a student to graduate without seeing a patient.

Students who are interested in working in depth on a particular subject may become "allievi interni" (internal pupils) for several years during their student training. They help with research and teaching, perform duties similar to those of a Ph.D. student in the United Kingdom, and subsequently receive a certificate. In general, such students will be well above the standard of the ordinary graduate, and will already have experience of a specialized field by the end of the undergraduate course. Most academic doctors have been through this training in their undergraduate years.

Most universities have free entry and the student body is reduced by about half at the end of the first year. Nevertheless, failed students may sit examinations again indefinitely, as frequently as once a month, and clearly add a very large burden to their instructors. All medical teachers I met in Italy were keen to restrict the number of entrants to the medical schools to something like one-third of the present entry. Only two medical schools (the Catholic University of Rome, and the medical school at L'Aquila) have a fixed annual entry, taking about 200 students a year each. The former is a private establishment supported by the Catholic church, the latter is supported financially by the provincial government of Abruzzi and seems bound to lose its privileged position, if as is likely, it is taken over by the national Government. The recently founded Collegio Medico in Pisa also has a limited entry of about 200 students a year; this is not a separate medical school, but is part of the medical school of Pisa, taking only a small part of the student body, providing them with accommodation and special tuition, rather in the manner of an Oxbridge college.

Students training in State universities receive grants of up to £250 a year, out of which they pay for their courses; this provision is dependent on satisfactory performance, and is subject to a means test. Most of them live at home as students, a few holding other jobs in order to survive financially.

After graduation, which is mainly determined by oral examination, the Italian doctor spends a compulsory six months working in a hospital before registration as a doctor with the local Ordine dei Medici (organization of doctors). Registration is determined by an examination which is set by the State at the end of this six-month period, but in practice this is a formality. The obligatory period of hospital work will shortly be extended to a year.

The regional Ordine dei Medici combines the roles taken in Britain by the General Medical Council, the medical in-

surance societies, and the British Medical Association. It maintains a register of doctors and specialists, has certain disciplinary functions regarding its members (but seems liberal when it comes to advertising), will undertake legal defence of its members, and negotiates the rates of pay they receive from the *mutua*. In addition it runs its own pension scheme and *mutua* for its employees and members. All the regional Ordine dei Medici are represented in the Federazione Nazionale Ordine dei Medici (F.N.O.O.M.) in Rome.

The number of doctors is increasing rapidly, and is estimated to double within the next six years. There is virtually no long-term medical unemployment, and, as salaries are as high as elsewhere in Europe (and higher than in the United Kingdom), there is little likelihood of a flood of Italian doctors to other parts of the European Economic Community. But serious medical unemployment would occur in a few years if present trends are allowed to continue.

University Hospitals

Italian medical schools see themselves primarily as teaching institutes, and there is less emphasis than in this country on clinical service, and particularly on research—which in some smaller schools is virtually non-existent. This emphasis on teaching is at present inevitable because of the numbers of students, and a general lack of funds for research.

Though preclinical schools seem similar to those in the United Kingdom, there are striking differences between the clinical schools in the two countries. In Italy these are usually organized within a university hospital, and, with few exceptions, are divided into separate faculties or institutes, often in quite separate buildings, with separate patients, laboratories, radiological facilities, libraries, and staff. The extent of this separation into institutes can be gauged by the fact that "internal medicine" as it is known in the United Kingdom and North America is in most medical schools represented by three separate institutes—*semeiotica medica* (equivalent to clinical methods), *patologia medica* (the study of disease entities), and *clinica medica* (the presentation of the disease, and its treatment). Each institute runs a full clinical service and contains specialists dealing with most of the systems of the body with little reference to corresponding specialists in other institutes. This system seems wasteful to the outsider as it leads to much unnecessary replication of resources. A major factor maintaining the system is the direct payment of university salaries, including those of secretaries and technicians, by the Ministry of Education in Rome; there is, therefore, less incentive to practise economy than in the United Kingdom, where departments compete for salaries from a block grant to the university.

In the past doctors working in Italian medical schools have enjoyed great prestige with their colleagues. This has declined recently—partly because the "libera docenza" (a postgraduate degree equivalent to the M.D., and administered by the universities) was abolished during the recent political upheavals, but more dramatically as a result of recent financial scandals, involving several senior clinical professors of the university of Turin.

The universities still enjoy the control of specialist registration, a major part of the fees for these courses being paid to the senior staff in charge of the department. The clinical salaries from the Minister of Education are on the same basic scales as other faculties. Until recently there was a variable addition derived from fees of private patients, which the heads of departments distributed or kept to themselves as they saw fit, but, under a new law, the universities' income from *mutua* and private patients goes to the state. The state then pays it back for additions to salaries of medical faculties, in an attempt to bring the stipends of university doctors in line with their colleagues in civil hospitals.

With the exception of the medical school of the Catholic University of Rome (a private university), university hospitals do not insist on their doctors being full time, and the vast majority

supplement their salaries from private practice, or appointments in the *mutua* (either as general practitioners or specialists). For a senior academic man this supplementation can easily treble his total earnings. For junior hospital doctors service in the *mutua* is usually essential for financial survival, as they may receive little or no salary for their university work, but the extent to which the university service is maintained by doctors working in the *mutua* varies greatly between different universities. As a doctor becomes more senior, and accustomed to the financial support of the *mutua* and private practice, he is unlikely to give these advantages up, even though they are not essential at the level of director or head of department, as he can thereby enjoy a much higher standard of living. Senior hospital doctors, whether working in university or civil hospitals, enjoy total earnings which are much higher than are usual in Britain, even though their official hospital salaries are very similar.

Civil Hospitals

Civil hospitals are financed by payment from the *mutua* and direct state subsidy. There is less prestige for a doctor in working in a civil hospital, though these institutions generally have the advantage of centralized laboratory and radiological facilities, and appear to suffer less from artificial bureaucratic divisions than their university counterparts. In some of the civil hospitals—for example, the San Giacomo in Rome, and the San Carlo in Milan—there are first-rate clinical and research units which are as enterprising and stimulating as any in the university hospitals. These are usually the creation of one or two men with drive and enthusiasm, who gather a team of eager young men around them and manage to scrape up funds from various foundations for clinical research. Surprisingly the good civil hospitals which I saw play little or no part in undergraduate education, though they may be favourably placed geographically to take students from the medical school in the same city, and would like to do so.

In comparison with the United Kingdom, Italian hospitals suffer from a striking lack of medical ancillary workers—such as nurses, radiographers, technicians, physiotherapists, and social workers. Anyone visiting a hospital will meet doctors and ward cleaners, but practically no intermediary staff. In university hospitals this deficiency is partly compensated for by the presence of large numbers of students and junior doctors, but the deficiency has profound effects on patient care in the non-teaching hospitals. In a recent article⁷ Dr. Arturo Gonzalez pointed out that the ratio of nurses (most of them members of religious orders) to doctors in Italy is 0.3:1—about one-tenth of that in most industrial countries. With these conditions it is easy to understand why the position of Italy in the international health league is relatively poor—an infant mortality which is two and a half times that of Norway (the lowest in the world) and 1.7 times that of Great Britain, and a death rate from respiratory tuberculosis of 10 times that of Holland and three times that of the United Kingdom.

Specialization

Specialist qualifications are much more common in Italy than in the United Kingdom, and are awarded entirely by the universities; in this respect there are no bodies with functions comparable to the royal colleges in this country, or the specialty boards of the United States.

There are over 500 specialist courses offered by the 25 Italian medical schools, most taking two to three years. Successful completion of a course depends more on attendance than on the passing of examinations, though in most courses some sort of assessment is carried out. All specialist courses offered by a university must be approved by the Ministry of Public Instruction in Rome and a specialist register is kept by the local *Ordine dei Medici*. Courses are part time, and

usually taken by junior hospital doctors pursuing their clinical duties; some are correspondence courses. The number of specialist certifications offered by a university is very large—for example, 38 for Milan and 31 for Turin. Not surprisingly many doctors hold multiple qualifications, and most doctors of more than a few years' standing have at least one. There is thus a much less sharp division between specialists and practice than in the United Kingdom.

Research Institutes

Research outside the medical schools plays a relatively more important part than in British medical life.

The Ministry of Health has a large investment in medical research in the Istituto Superiore di Sanità, a complex organization based in Rome with many responsibilities, including the monitoring of the food and drug industries, control of pollution and ecology, veterinary medicine, and the provision of microbiological, parasitological, and chemical pathology services. The institute is not simply concerned with service, but pursues basic and applied research objectives in many fields, including biochemistry, antibiotics, pharmacology, and the use of computers. It is not responsible for clinical care, and co-operates with outside centres in clinical fields, such as child health, research on atherosclerosis, and organ transplantation.

The Government supports research more directly through the C.N.R. (Consiglio Nazionale delle Ricerche), which is equivalent to our Medical Research Council except that it is also responsible for research in the humanities and the non-medical sciences. The C.N.R. expenditure on biological and medical research is modest compared with the M.R.C.—£5½m. in 1971 (the last year in which figures are available to me) as against £23½m. Like the M.R.C., the C.N.R. supports individuals in their research and also runs its own institutes throughout Italy, often self contained (such as those in cellular biology in Rome, or genetics and biophysics in Naples), but sometimes closely integrated within a preclinical school or a university hospital—as in the case of the clinical physiology institute in Pisa. In comparison with the universities, the C.N.R. institutes I saw are well equipped and staffed, though even they are experiencing an appreciable cutback in funds this year. Many of their directors are young and they appear to be free of the hierarchical restraints present in some of the older university departments. Nevertheless, even they have had their political troubles; many were occupied by students in 1968, and their career structure has come under political attack and has been seriously damaged by recent trade union activity. As a result there have been difficulties in the recruitment of senior staff.

The C.N.R. institutes are, with a few exceptions, concerned with basic research. In addition there are several clinical institutes which are outside the universities and civil hospitals, yet pursue clinical research on patients who approach them directly or are referred by *mutua* or other doctors. These comprise three cancer research institutes (Rome, Milan, and Naples), a paediatric institute in Genoa, a neurological institute in Milan, and a geriatric centre in Ancona. I have visited only the cancer institute in Milan, and was impressed by its ambitious scale. It is really an entire modern hospital devoted to cancer research and treatment, with about 600 beds. It is obviously successful in attracting funds—mainly from the *mutua*, but partly from research foundations, the C.N.R., and the Government direct.

Finally, there are a number of separate institutes supported directly by the Government outside the C.N.R., of which the marine biological institute in Naples is probably the best known to biologists. Even this famous institute has had its political troubles, and is still in the hands of a caretaker administration.

It is difficult to make general comments on the Italian contribution to medical research, but my impression is that this is concerned to a greater extent with common diseases—for example, atheroma, hypertension, and cancer—than in the United Kingdom. Few research workers seem to be studying diseases which are rare but of great physiological or biochemical interest—such as genetic disorders, enzyme defects, and immunology. The Italian genius appears to work best in a relatively small group of individuals under a single director, and I gathered that there are few of the multicentre investigations which have become fashionable in this country.

British/Italian Interchange

Language is a major problem here. As there are no language requirements for Italian medical training, most young Italian doctors, like their British counterparts, know no language other than their own. Those with a burning interest in international medicine make it their business to learn English, but scholarships in the United Kingdom and the United States usually involve some financial sacrifice, and are not likely to improve career prospects at home, so only an exceptional Italian graduate will have the determination and thirst for knowledge to pursue this course.

Likewise conversational Italian is essential for the British doctor intending to work in Italy, though it might be possible to scrape by in a pure research laboratory without it. Most

British doctors wishing to work in Italy will already have a centre in mind, and are likely to gain most benefit in a research institute, either in a university or more likely outside it. They can be confident of a warm welcome, for Italians like visitors to feel at home and have a great admiration for British institutes and medical practice.

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Hospital Topics

Tuberculosis as a Continuing Cause of Renal Amyloidosis

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Summary

In 40 patients with renal amyloidosis seen in a ten-year period tuberculosis was the major preceding disease in 20, though it was active in only two at diagnosis. Most patients presented with renal failure, and only two survived for five years. This experience (at least, in the west of Scotland) conflicts with the generally accepted view that rheumatoid arthritis is the commonest cause of renal amyloidosis.

Introduction

Early papers on amyloidosis quoted incidences of tuberculosis as a preceding disease of over 80%,¹⁻⁶ but more recent texts on renal disease⁷⁻⁹ state that rheumatoid arthritis is now the main cause of secondary amyloidosis. This opinion seems to be widespread, reflecting the view that with the introduction of effective antituberculous chemotherapy the incidence of amyloidosis as a secondary complication would decline. Since our experience is that tuberculosis remains the major antecedent of renal amyloidosis we thought it important to record our data.

Patients and Methods

The case records of 40 patients known to have renal amyloid disease in Glasgow Royal Infirmary in 1963-73 were available for analysis. Thirty-three patients had been under the direct

care of the renal unit and the remaining cases were found from the hospital's necropsy records. The diagnosis was confirmed in all cases by histological examination. Kidney tissue, obtained by percutaneous renal biopsy (20 cases) or at necropsy (nine cases), was diagnosed as containing amyloid by the presence of classical green birefringence in sections stained with Congo red and viewed under a polarizing microscope. In 11 patients the finding of considerable amyloid deposition in biopsy specimens of rectal mucosa or liver together with clinical evidence of renal involvement led to the diagnosis of renal amyloidosis without recourse to renal biopsy.

Results

The clinical, biochemical, and pathological findings in the 40 patients are grouped according to aetiology in the table. There were 21 males and 19 females ranging in age from 12 to 75 years (mean 48). Most (72%) were in the 40-60 age group. In 37 patients there was evidence of an antecedent chronic illness permitting a diagnosis of secondary amyloidosis. Tuberculosis (15 pulmonary, three bone, one renal, and one abdominal) was the major preceding disease, accounting for 54% of those with secondary amyloidosis. The tuberculosis was considered active in only two of these patients at the time of diagnosis of amyloid disease. Ten patients (27% of those with secondary amyloid) had polyarthropathy (seven rheumatoid arthritis, one Still's disease, one psoriatic arthropathy, and one ankylosing spondylitis) but three of these patients also had a history of pulmonary tuberculosis. Nine patients (24% of those with secondary amyloid) had histories of chronic suppurative disease (seven pulmonary, one bone, one skin). In the three patients classified as having primary amyloid disease no preceding cause was identified despite thorough investigation. One patient had amyloidosis associated with a tumour of the bronchus.

The estimated interval between the onset of the predisposing illness and the diagnosis of renal amyloidosis varied from 6 months to 43 years (mean 17 years). There was no great difference between the time of diagnosis of amyloidosis after tuberculosis (21 years) or after chronic suppurative disease (17 years),

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