

The teaching of chemical pathology to medical students in the United Kingdom

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In the United Kingdom each teaching hospital of a medical school generally has a department of chemical pathology under a professorial head, and this department is usually responsible for all of the three linked functions of hospital service and consultation, undergraduate and postgraduate teaching, and research. The term 'chemical pathology' is most widely used to describe the subject, and will be maintained throughout this article: alternative titles are 'clinical chemistry' and 'clinical biochemistry'.

There is concern amongst chemical pathologists about recruitment to the discipline, and they have wondered whether its apparent lack of popularity amongst recent medical graduates could be connected with the way that it is presented to medical students. In medical education as a whole there is special interest in the blurring of the traditional margins between preclinical and clinical subjects and amongst the clinical subjects. It was therefore thought opportune to survey the teaching of chemical pathology to medical students in this country: we have seen no previous publication on this subject.

A letter was sent to the appropriate head of department in every medical school in the country. This described the present teaching programme at this medical school, and asked for information and views on their present teaching programme (including examinations) and on any agreed plans for the future.

Information about their teaching together with some details of examinations, and often much interesting comment, was received from 24 schools.

Teaching Programmes

Chemical pathology was taught in seven possible stages (Table).

PRECLINICAL

Fifteen schools undertook a small amount of teaching, usually only a few lectures, before 2nd

MB. This was generally organized in collaboration with physiology or biochemistry.

INTRODUCTORY COURSE

Eighteen schools gave elementary lectures and often practical tuition on urine testing and venepuncture at the beginning of the clinical years. The amount of teaching varied from two to 26 hours, being usually about six hours.

ANNUAL LECTURES

Twenty-one schools gave a course of 10 to 20 formal lectures, often linked with teaching in the other disciplines of pathology. Those that omitted this form of teaching had provided more tuition than usual in the introductory course.

CLERKING

Nine schools provided an actual clerkship, by which is implied a set period of time, eg, a week, in small groups, almost solely in the Department of Chemical Pathology.

TUTORIALS

Eight schools provided teaching in small group tutorials, not in a clerkship, usually about six hours per student.

INTEGRATED CLASSES

Fifteen schools had introduced teaching chemical pathology as a clinically integrated subject, in which the time devoted to chemical pathology was very variable.

REVISION

Students often asked for revision tutorials, and in 10 schools five to 10 tutorials were offered.

Examinations

The practice is very variable. In all the London schools, at some time after the end of the second clinical year, there is a multiple-choice question,

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Medical School	Pre-clinical	Introductory Course	Annual Lectures	Clerking	Tutorials	Integrated Classes	Revision
1	+	+	+		+	+	
2	+	+	+				
3		+	+		+	+	
4			+	+			
5	+	+	+	+		+	+
6	+	+	+		+	+	+
7	+	+	+			+	+
8	+				+		
9		+	+				+
10		+		+	+		+
11	+		+			+	
12	+		+				
13			+				
14	+		+	+	+		
15	+	+	+			+	+
16		+	+			+	
17	+	+	+			+	
18	+	+	+	+		+	
19	+	+	+	+		+	+
20		+	+	+		+	+
21	+	+	+	+		+	
22		+	+		+	+	
23	+			+		+	
24		+	+			+	+
25		+	+	+	+		+

Table Stages used in teaching chemical pathology to medical students in the UK

essay, laboratory, and oral examination in pathology, of which chemical pathology makes up about a quarter. Outside London, in some schools there is a similar system, in some there is continuous assessment which includes a class examination, whilst in some the subject is apparently not examined at all.

Discussion

From the views expressed by the heads of departments and the information provided, certain opinions on the teaching of chemical pathology to medical students became apparent.

The way in which medical students are taught preclinical biochemistry influences their attitude to the acceptance of the teaching of chemical pathology. They may feel overexposed to chemistry and biochemistry apparently little related to clinical medicine. The traditional boundary between pre-2nd MB biochemistry (and to some extent physiology) and post-2nd MB chemical pathology (clinical biochemistry) is too rigid. All schools where the chemical pathologists taught preclinical students welcomed this opportunity and sought to extend it; others wanted to introduce it. One of the functions of this teaching is to maintain the often flagging interest of the preclinical student in biochemistry by already relating it in general terms to the practice of medicine.

In the introductory course the teacher of chemical pathology has a further opportunity to link biochemical changes and investigations to medicine. Chemical pathologists tend to teach urine testing,

venepuncture, and specimen collection procedures here because it is the best opportunity.

The annual course of lectures in the second or third clinical year, in chemical pathology as in other subjects, has become an institution. Yet most schools as a deliberate act of policy consider it worth retaining. The lecture course also serves a function in the training of junior chemical pathologists, as to some postgraduates preparing a series of lectures is an excellent way of learning the subject.

The clerkship is controversial. A lot of schools teach in small group tutorials and demonstrations, but opinions differ whether this needs to be in fixed periods in the department, usually associated with a clerkship in the other disciplines of pathology. The proponents of the clerkship state that it guarantees the availability (if not absolutely the attendance) of the students, and that it offers the important opportunity for the student to observe both the research and the routine service work. It is hoped that this contact with the department will improve later clinician-pathologist liaison, and interest some students to become chemical pathologists. The case against a clerkship is that it is expensive of student time and a heavy load on the teaching staff. As student numbers in a medical school increase without a proportionate increase in the number of teachers, so it becomes harder to continue teaching in small groups. In general very little practical teaching apart from urine testing was considered necessary. However, a number of departments offer facilities for the students' elective

period, although very few students chose to take advantage of this offer. In tutorials there are alternative systems. Either one student prepares a topic for presentation (which is unpopular, and tends to become a monologue), or the subject is announced in advance for all the students to read up.

Joint teaching, integrated with clinical and other disciplines, is widely acceptable: the subject thus loses its isolation, and teaching of chemical pathology by chemical pathologists can be maintained to the end of the clinical course. Provided that the clinical school as a whole is in favour of this approach, it is less difficult to organize than some fear. Many chemical pathology departments take part in joint teaching, or are trying to encourage joint seminars with other departments. Unfortunately such seminars often only involve the chemical pathologist being brought in at the end of a clinical session, which is expensive of teachers' time.

Revision classes, at the end of the course, will continue to be popular with students as long as the present examination system continues. The more a continuous assessment system exists, the less need there will be for the final 'forced feeding'.

Very few schools used audio-visual aids on a

significant scale, but the use of aids such as tape-slide units seems to be very suitable for the teaching and revision of chemical pathology to medical students. However, preparation of suitable material makes considerable demands on the teachers. Histopathologists have so far paid far more attention to this than have chemical pathologists.

How can the teaching of chemical pathology affect recruitment to the profession? We feel that many students tend rightly to make any decision about specialization as late as possible, so if chemical pathology (as other disciplines of pathology) is taught only early in the medical curriculum, then it will have little meaning for the newly qualified doctor except as numbers on report forms. Whether in departmental teaching, or in joint classes, the chemical pathologists must be in a position to show directly to the student throughout the clinical course the important contribution that the subject makes to the welfare of the patient and to the advancement of medical science.

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