Abstract The electronic media have become an essential part of medical education worldwide, and are being used in undergraduate and postgraduate medical training, as well as in continuing medical education. The public increasingly has access to medical information via the internet, with the quality of this information being variable.

This paper reviews some of the material related to rheumatology available on electronic media for the medical profession and the public.

Keywords Electronic media · Medical education and rheumatology

Introduction

What is available in undergraduate, postgraduate and patient educational material in rheumatology?

Within the last decade, communication and information technology via electronic media has become an essential part of medical education worldwide. The major driving forces have been the falling cost of networked and personal computers, and the worldwide web [1].

Undergraduate medical courses have changed in many universities over recent years [2]. The original separation of pre-clinical and clinical years has been replaced by courses with both horizontal and vertical integration, and a problem based approach to learning. Basic sciences are incorporated with clinical work, and there is an introduction to clinical sciences early in the course. New curricula aim to avoid duplication from the same material being taught by different specialty groups, and to develop a common approach to a topic by the specialty groups involved (e.g. by rheumatologists and orthopaedic surgeons). To facilitate teaching, educational materials have been developed, much on electronic media: some originally on compact disc (CD) and subsequently on the internet and many university or hospital intranets.

This paper gives some examples of electronic material available related to rheumatology. One of the difficulties is the lack of a database of the material available. In spite of the considerable costs involved, there is duplication of material, with universities often developing their own material rather than sharing this or adapting material already developed. Attempts are being made to rectify this [3].

Text Books

A number of traditional text books are available on CD ROM. An example is Rheumatology, edited by Klippel and Dieppe [4]. Up To Date [5] incorporates a comprehensive rheumatology text by multiple authors, with the advantage of regular revisions and updates. Recent studies and trials can be incorporated in the updates which are distributed every four months. Access is also available for subscribers to an online version. Other subspecialty areas are covered.

Slide Collections

The American College of Rheumatology slide collection [6] is available on CD ROM, making it easily portable, and with the possibility of incorporating the images into PowerPoint presentations. The development of relatively low cost digital cameras also makes it possible for individual rheumatologists to take their own clinical photographs and transfer them to PowerPoint images.

Anatomy Tutors

The anatomical drawings of F. Netter are well known, and are available on CD ROM [7]. The drawings can be
looked at individually, in regions, by systems or in movie form with cross sectional anatomy.

Primal 3D Interactive Series [8] consists of anatomy and clinical pathology software featuring three dimensional anatomical models which can be rotated; layers of anatomy can be stripped away from the model, and every visible structure labeled.

an@tomedia [9] has recently been developed by the Anatomy and Cell Biology Department and the multimedia education unit at the University of Melbourne. Separate CD’s cover general anatomy, the back, abdomen, thorax, upper limb, lower limb, pelvis, head and neck. The approach is via four perspectives:

1. dissection – including practical procedures
2. systems – including conceptual and functional anatomy
3. regions – including surface and clinical anatomy
4. imaging – including sectional and endoscopic anatomy.

Joint Examination

Virtual rheumatology [10], funded by the United Kingdom Arthritis Research Campaign, is an interactive guide to clinical anatomy and the clinical anatomy of the shoulder and the knee. It covers terminology related to position and movement. The anatomy of bones, joints, muscles and tendons are covered, as well as history taking and examination technique. Video clips are used where appropriate. Other sites are being developed related to joint examination, but some are available only to students of the relevant medical school [3].

Clinical rheumatology tutorials

The American College of Rheumatology (ACR) (www.rheumatology.org) has developed a tutorial system aimed at medical students and primary care physicians called “High Impact Rheumatology” [11]. This is based on six clinical presentations: (1) acute monoarthritis (2) rheumatoid arthritis (3) osteoarthritis (4) back pain (5) diffuse arthralgia/myalgia (6) multi-system disease. There are additional modules on spot diagnosis and joint examination/injection. It consists of a PowerPoint presentation with appropriate clinical material (some of which needs to be modified for different audiences because of colloquial terminology and different units for laboratory investigations). It has proved to be a very effective means of discussing some specific diseases and also the differential diagnosis of some presenting complaints.

The ACR also has a Core Curriculum on CD-ROM which includes 33 cases, each containing a series of multiple choice questions. The cases are presented in both self study and tutorial form.

Interactive rheumatology tutors

The Interactive Rheumatology Tutor was developed in 1997 [12, 13]. It is aimed at undergraduates, general medical and rheumatology trainees and general practitioners. Some areas are appropriate for each of these groups, and there are some areas common to all. It includes interactive tutorials, case histories and quizzes, a disease based section, patient presentations, instruction in history taking and examination in rheumatology, investigations, and treatment. The Tutor is illustrated by many images, and includes video and audio clips demonstrating clinical procedures. It also has a database of numerous articles.

The Arthritis Research Campaign has also funded the development of a web based rheumatology tutor “Joint Zone” [14]. This covers basic sciences related to the musculo-skeletal system and the immune response. Other sections cover rheumatic disorders, approach to patients, musculo-skeletal examination, investigations and disease management. There are also case studies, aimed at beginners, intermediate or advanced users. Video clips are used.

Journals

Many medical journals are available on-line. Occasionally full text journals are available free of charge, but more often by subscription. Another useful free service is notification of the table of contents by e-mail when new issues are available. Details of the site addresses can be obtained via the ILAR web site (see below) or by searching for a specific journal. Literature searches can be done through Medline (e.g. via the US National Library of Medicine site www.nlm.nih.gov/).

Pharmaceutical company sites

Several pharmaceutical companies have developed sites which include information about recent journal articles and an abstract service. Examples are www.omnus.com and www.docguide.com.

Guides to rheumatology sites on the net

One of the difficulties in sourcing educational material on the Web is knowing where to look, and evaluating the content and reliability of individual sites. This holds for health professionals and for the public [15, 16].

eMedguides [17] are an attempt to address these problems. They cover various specialty areas, including a recent volume “Arthritis and Rheumatology – an internet resource guide”. It reviews “over 1600 top web sites”. Sites reviewed relate to many areas, including clinical studies and trials, clinical guidelines, journals,