155P THE PATHOPHYSIOLOGY AND PHARMACOLOGY OF INFLAMMATION: AN INTERACTIVE, COMPUTER-BASED TUTORIAL PROGRAM FOR UNDERGRADUATE STUDENTS

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This computer-based tutorial program was developed by the Pharma-CAL-ogy consortium, a programme funded by the Teaching and Learning Technology Program (TLTP), whose aim is to promote the development of new teaching software in areas of pharmacology where there is an identified need. It is intended as an introductory learning package on the pharmacology and pathophysiology of inflammation and is aimed primarily at undergraduate students of pharmacology though it will also be useful for students of medicine and biological sciences.

The program was developed using Authorware Professional for Macintosh ™ (version 2.2: Macromedia). It will run on either: IBM compatible microcomputers (minimum configuration: 386 PC, 25 MHz, running Windows™ 3.1 (Microsoft), a sixteen colour VGA monitor and a mouse), or any Macintosh microcomputer with 2Mb RAM and 12" colour monitor.

The content is divided into several sections each of which may be accessed from a menu: Aims and Objectives; Introduction (covers the main elements of the inflammatory response and the cardinal signs); Pathophysiology - sub-divided into: Introduction (the timescale of the various processes involved in the inflammatory response); Microvascular Effects (the microcirculation and the inflammatory processes occuring there); Mediators (the major chemical mediators involved in inflammation - the synthesis and the site and mechanism of inflammatory actions of: histamine, bradykinin, nitric oxide,

eicosanoids, neuropeptides and cytokines). Cell Accumulation (the molecular mechanisms involved in neutrophil accumulation at the site of injury, adherence, margination and extravasation); Repair and Healing (the major processes involved in tissue repair); Pharmacology (large section covering the structure, pharmacological mechanisms of action, and toxicity of the main drugs in the following classes: Non-steroidal anti-inflammatory drugs (NSAIDS); Steroidal Anti-inflammatory Drugs (SAIDS); Disease Modifying Anti-arthritic Drugs (DMARDS).

High quality colour graphics are used extensively throughout the program and features such as animation and a hotword facility are used to enhance student learning. Interactive features include: labelling diagrams by "dragging" labels from a list and "dropping" them into the box corresponding to the correct position on the diagram; MCQ's with helpful feedback for correct and incorrect answers; True/False questions with feedback.

The learning package is intended for independent study and would occupy students for 4-5 hours of fairly intensive study. It is suitable for primary learning, to support lectures or tutorials and for revision.

156P A COMPUTER-BASED, INTERACTIVE TUTORIAL TO INTRODUCE THE CLINICAL ASPECTS OF PAIN TO UNDERGRADUATE STUDENTS

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A wide range of computer-based courseware, suitable for undergraduate pharmacology teaching, is now available to enhance and sometimes replace traditional teaching methods. It has many advantages: it promotes active learning, giving students control over when and where they learn and the pace of their learning, and it potentially saves staff time. Often the software incorporates features which enhance the quality of presentation of material and promote better understanding. Also the availability and user-friendliness of sophisticated authoring programs now makes it possible for academics with little programming knowledge to develop new (or modify existing) high quality courseware. Here we demonstrate an interactive, computer-based tutorial which aims to introduce the clinical aspects of pain. It is suitable for first year undergraduates from a range of biological science, medical and health-related courses and may be used for both primary learning, revision and as a remedial teaching resource.

The program was developed using Authorware Professional® (Macromedia Inc.) to run on IBM PC compatibles (minimum delivery platform: 386 SX, 20 MHz PC running Windows™ version 3.1 (Microsoft), a sixteen colour VGA monitor and a mouse).

The main menu allows students to access ten sections: Introduction; Terminology (definitions and explanations of important terms e.g. pain, analgesia, allodynia, hyperalgesia, nociceptors); Types of Pain (e.g. acute, chronic, nociceptive, neuropathic); Functions of Pain (under normal physiological conditions); Pain and Injury (examples of the variable link

between pain and injury); Dimensions of Pain (sensory, affective, cognitive); Pain Assessment (pain assessment tools including rating scales and pain location charts); Pain Management (introduction to pharmacological and non-pharmacological methods of pain relief); Summary; Revision (20 self-assessment MCQ questions).

High quality colour graphics are used extensively throughout the program and features such as animation and a Hypertext facility are used to enhance student learning. The program is highly interactive and uses several features to promote this: for example students are required to: label diagrams by "dragging" labels from a list and "dropping" them into the box corresponding to the correct position on the diagram; interpret different types of pain chart. In addition they must answer a variety of questions which may be multiple choice, selecting correct phrases from a list to complete a statement, true/false questions with feedback, hangman game, matching definitions with statements etc.

The learning package is intended to be used either to support existing teaching methods or for independent study where it could be used as an alternative to staff-led tutorials or lectures (the material covers approximately two to three one-hour lectures to first year students). It is estimated that it would occupy students for two to four hours of fairly intensive study and is suitable for primary learning or revision. The question-answer sections may also be useful for self-assessment.

Providing the program evaluates well in student use it will be extended to cover the physiology and pharmacology of pain.