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Creation of two/three-dimensional molecular database of anaesthetic drugs

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The use of two- and three- dimensional structural databases have not obtained widespread recognition as a learning aid to complement the theoretical aspect of Medicinal Chemistry tuition. The meaning of the term visualisation has changed from one that “was used simply to refer to the process of imagining” to the word being “applied to images that enhance our imagination and visual experience”. Thus the development of a virtual environment that contains both molecular structures and physicochemical processes involved in ligand-target interactions may increase students’ receptive capacity. The Anaesthesia section of the British National Formulary was chosen and an Anaesthesia data-sheet was set-up containing structural data and formulary information. Drug structures were drawn in two dimensions using Accelrys® and three dimensions using Sybyl-X®. The information generated was transferred to an online database to be disseminated during the evaluation of the database as an educational tool in a teaching environment. A pre-test questionnaire was disseminated to ninety-one students reading for a Bachelor of Pharmaceutical Sciences (Hons.) degree at the University of Malta. A post-test questionnaire was disseminated after a two week interval. The latter questionnaire was completed following a medicinal chemistry tutorial during which the intervention groups were given access to the molecular database. A significant improvement in final mark was obtained by the intervention groups (p-value 0.000 for all course years) compared to the respective control groups (p-value 0.374, 0.256, 0.374 and 0.073 respectively). Student understanding of abstract concepts is enhanced when innovative teaching techniques are utilized.

Biography

J Cefai had completed his Bachelor of Pharmaceutical Sciences (Hons.) in 2013 and Masters of Pharmacy from the University of Malta at the age of 27 years.

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