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"Poster Preparation and Presentation As A Novel Method of Learning in Medical Biochemistry"

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"Education Is Not The Learning Of Facts But The Training Of The Mind To Think."Albert Einstein

I. Introduction

Learning involves three steps: remembering information, thinking, which is the rearrangement of information, and learning a process to use the information in a thought process until the person becomes fluent. Therefore a true teacher works with individuals and helps them in their efforts to learn how to learn. Good teachers try to do two things: present concepts with interesting examples and metaphors rather than spewing out hundreds of factors and reveal to the listeners their intense interest in the subject. If the teacher is not excited about the subject he is going to teach then the audience will also be uninterested. The need to get very high scores in the examination and master the questions to answer directly or indirectly made students to master the ability to recollect facts (Knowledge). The varied curricula of these students from the state Boards to central Board to international syllabi have trained students in different ways. The availability of more resources and better exposure of students learning in cities possibly contrasts with those students who learn in a very poor environment of schools in the remote villages. The students who get admitted into medical colleges in their first year of studies (pre-clinical subjects-Anatomy, Physiology, Biochemistry) come with a mental capacity to recall without possibly having adequate training to apply those learned facts into a processed information so that the student could apply those facts into the practical applications.[2]

Many students still believe that they need to study prescribed text books like they do in the School trying to develop the skill to answer the questions asked in the examination to succeed. Some even ask whether we can mark those answers in the text book so that they can memorize facts. The Department wanted to devise a method to make the teaching of Biochemistry interesting and help kindly the curiosity of learning in the students' minds. It made them feel important as partners in teaching and learning process. It will be critically think what is the Traditional Medical Education focuses and what it has to achieve by fulfilling the interests of the students along with expanding the domains of learning. The Traditional Medical Education in nut shell :[3]

Focusses on the following:

- Presents a focused problem
- promotes rapid recall
- fosters stigma " I donot know"
- Assess with short answers
- standardized exams
- Emphasizes individual performance

Therefore what needs to be done to modify or enhance the teaching and learning process by :

Real time Medicine-research:
Which

- Confronts multi-disciplinary complex problems
- requires exploration of information
- contains incomplete and conflicting information
- promotes creative and complex solutions
- requires collaborative problem-solving

Based on that and the training imparted by medical education specific learning outcomes (SLOs) and intended learning outcomes (ILO) have been suggested as a way to monitor the progress, delivery and learning of Biochemistry.[4]

Departmental Objectives of Teaching- Learning of BiochemistryKnowledgeAt The End Of The Course The Student Will Be Able To-

1) Describe the molecular and functional organization of a cell and list its sub-cellular components.
2) Delineate structure, function and interrelationship of biomolecules and consequences of deviation from the normal.
3) Summarize the fundamental aspects of enzymology and clinical application wherein regulation of enzyme activity is altered.
4) Describe digestion and assimilation of nutrients and consequences of malnutrition.
5) Integrate the various aspects of metabolism and their regulatory pathways.
6) Explain the biochemical basis of inherited disorders with their associated sequealae.
7) Describe mechanisms involved in maintenance of body fluids and pH homeostasis.
8) Outline the molecular mechanisms of gene expression and regulations of the principles of genetic engineering and their application in medicine.
9) Summarize molecular concept of body defences and their application in medicine
10) Outline the biochemical basis of environmental health hazards, biochemical basis of cancer and carcinogenesis.
11) Familiarize with the principles of various conventional and specialized laboratory investigations and interpretation of a given data.
12) Suggest experiments to support theoretical concepts and clinical diagnosis.

No. of lectures/tutorials: Theory: 144 hrs.
Total Teaching hours: Theory (Lecture/Tutorial): 144 hrs. .
Demonstrations : 16 hrs.
Practical : 80 hrs
TOTAL : 240 hrs

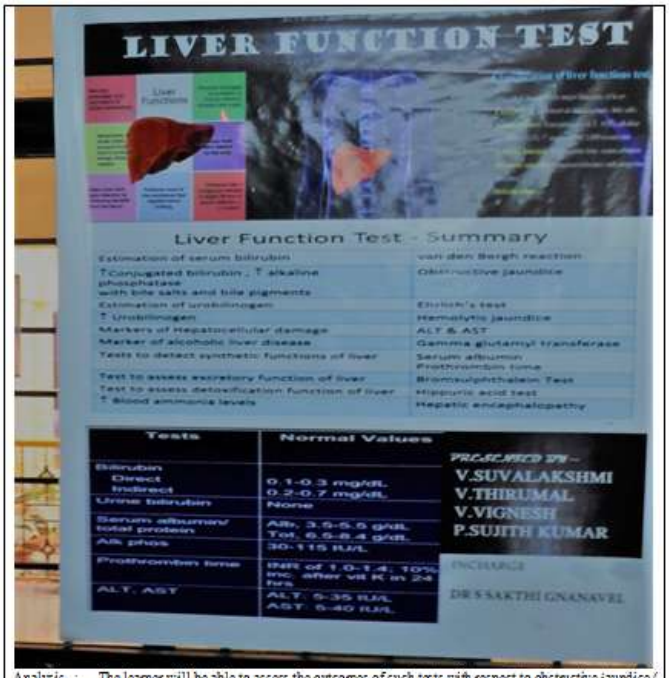
II. Materials And Methods

It was decided therefore to ask all the students in the first year MBBS, 2016-2017 Batch,Melmaruvathur Adhiparasakthi Institute of Medical Sciences and Research, Melmaruvathur to prepare posters covering the basic and applied aspect of Biochemistry. Students were given 7 days time to prepare the posters and to display it for evaluation. Judges from Biochemistry and Physiology were asked to assess the Charts based on the content, presentation and explanation given by the students who prepared the charts.The rough draft of charts were given by all the 150 students and were scrutinized. Based on the submission the students who were already divided into 4 Batches (A,B,C,D) were asked to prepare 10 charts for each batch. Each batch had 35 to 40 students. 4 students formed one team in each Batch and prepared the poster.

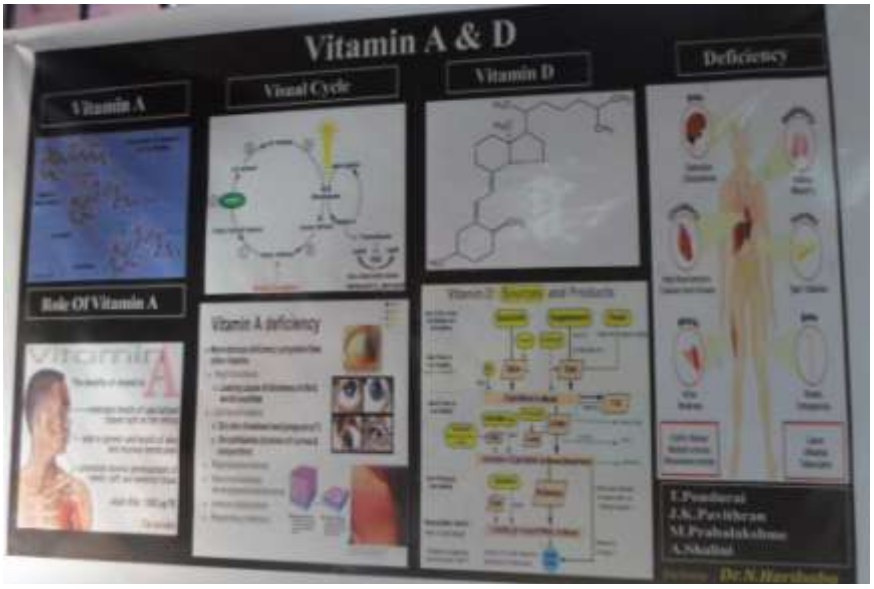
Students all of a sudden were engaged in preparing the charts or posters by scanning through information from the standard text books. The information gathered for each chart was rearranged and presented on the chart with a set pattern of uniformity satisfying the Cognitive domain- knowledge, comprehension, analyses, application, synthesis and evaluation. For example a chart or poster prepared had the following pattern:

Example:

Liver function Test: Poster- was prepared according to the learning outcomes prepared by them[5]



Analysis : The learner will be able to assess the outcomes of such tests with respect to obstructive jaundice (using the case history given or data supplied)
Synthesis : The learner will try to write a requisition for any one of the LFTs say for obstructive jaundice- Tests requested
Evaluation: The learner will be able to predict what may be hepatic dysfunction based on the results on hand-inference



Each poster covered all the domains of Education, kindled the curiosity of learning in the student's mind and made realize the place of Biochemistry in medical curriculum. Poster preparation or charts designed by the students seem to be a novel method of preparing the first year MBBS to learn Biochemistry and possibly place its role in the field of medical education.

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