



PROBLEM BASED LEARNING[PBL]

Anatomy

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ABSTRACT

Aim : of the present study is to know the importance of PBL that is taught in different parts of world & comparing that with of present study.

Place of the Study: In the class room of Lincoln University College, Malaysian Airlines Campus, Kelana jaya, Petaling jaya Malaysia.

Period of Study: This study was done during the year 2016-2017 for second year MD students

Materials&Methods:Forty students from second year MD were divided into 5 groups comprising 8 students in each group. They were given two problems one after another in the span of two months They were advised to examine two cases with discussion of lab investigations followed BY differential diagnosis of each cases. Then were advised to do references from Harisson, Davidson & other International books.

A male child aged 3-4 years with history of bleeding through nose & an elderly person aged 61 years with history of chest pain constituted the materials for the present study. In each case, proper antenatal history of mother like drug history taken in first trimester of pregnancy, past history marriage history to rule out consanguineous from non-consanguineous marriage any history of systemic diseases, treatment taken in the past any history similar complaints should be noted down. Differential diagnosed were advised to narrate by the students on rotation .Later every student was told to present both cases one by one on rotation. Any mistakes told by the students were rectified In the second round of PBL meeting ,Differential diagnosis was made to tell by the students to rule out one by one and Final Diagnosis was made. Later its clinical importance was discussed.

CONCLUSION; study helped students to solve the two problems clearly, -epistaxis & myocardial infarction very clearly through PROBLEM BASED LEARNING which involved small group discussion and essential skills .

KEYWORDS

Small group, Group Discussion, -Final Diagnosis, -Epistaxis, -Myocardial Infraction, -Angina Pectoris

INTRODUCTION:

Problem Based Learning is process of learning by small group of students Each student takes part in the group both formal informal on rotation . It is based on students reflection and through reasoning to build their own way of learning . However , teacher is a tutor who helps the students to create confidence to participate in the learning process. The duty of tutor is to **support them, guide them& supervise them** in the process of learning & make them to understand.

On the whole a tutor should identify a)what student know already ,b)what they should know,c]how & where to get new information that may solve the problem . [1].A tutor has to take students into the confidence to take part in the problem, encourage them & make them to understand .This is process is based on constructivism. Problem Based Learning is called paradigm shift which is a change from traditional teaching & learning philosophy more based on the lecture [2]. **PBL requires time to prepare & also resources to support for learning of small groups.**

Wood has defined **Problem Based Learning** as a process that uses identified issues within a scenario to increase knowledge and understanding.[3]

According to him[WOOD -2003],the following are principles of the process of PBL:

1. Learner-driven self-identified goals and outcomes"
2. Students do independent, self-directed study before returning to larger group'
3. Learning is done in small groups of 8-10 people, with a tutor to facilitate discussion'
4. Trigger materials such as paper-based clinical scenarios, lab data, photographs, articles or videos or patients (real or simulated) can be used'
5. The Maastricht 7 jump process helps to guide the PBL tutorial process'
6. Based on principles of adult learning theory'
7. All members of the group have a role to play'
8. Allows for knowledge acquisition through combined work and intellect'
9. Enhances teamwork and communication, problem-solving and encourages independent responsibility for shared learning - all essential skills for future practice'
10. Anyone can do it as long it is right depending on the given causes and scenario'
11. We can be champions and holder of a vocational degrees'
12. It depends upon the cases and the scenario the building of

curriculum lesson'

MATERIALS AND METHODS:

Second year MD Students of Lincoln University College ,Malaysia constituted the materials for the present study. The whole class of 40 students were divided into 5 groups comprising 8 students in each batch. They were given problem like Epistaxis seen in 3-4 years old male child & Myocardial Infarction case in 61years old elderly male during the year 2016.of 2016-2017 batch .They were made to study the problem given to them in two phases

In the Phase -1, They were made to study the cases that is given to them. Proper history of given case like Personal history ,Family history ,Antenatal history, Any history of intake of drugs during first trimester of pregnancy of their mother .Later Clinical examination of given case was systematically examined using their skill & knowledge. .This case was presented in front of facilitator/tutor by each student part., histories by one student, laboratory investigations by another student and so on. A week's time was given to all students to study about the problem with references from International Standard Text Book-like Harrison Text Book of Medicine ,Davidson Text Book of Medicine & other references books .Proper guidance was given to them about the case what to do-? & How to solve the problem-?.

In the phase -2,.Again after a gap of a week or two,again PBL classes were taken for discussion & guidance on same problem/case .This case was discussed with the students from each group using the photographs,clinical scenarios,datas of laboratory.From each student clinical scenarios, lab data, photographs, articles or videos or patients (real or simulated) were discussed in detail on rotation. Attention is given more to differential diagnosis. Any mistakes during presentation by the students should be corrected & guide them. Related topic should also be discussed .For example, in aetiology of EPISTAXIS[bleeding through the nose],in children and adults has to be discussed. followed by the discussion on hypertension in adults.Clinical lab data has to be co-related Comments has to be made on photograph regarding the age of patient with any relevant clinical history.

RESULTS:

Two cases were discussed as problem in two separate classes under supervision of two facilitators. They were i)Epistaxis seen in a male child of 3 years old ii)A case Myocardial infarction observed in 61 years old male.

II)Epistaxis seen in child: Clinical history was taken in 5 groups of students and made them to present. Corrections were made. History of

impact of foreign body was present. Students were made to study about epistaxis from the reference books. Then students discussed about the differential diagnosis of epistaxis with facilitators and proper corrections were made. Finally thorough discussion was made. Questions were asked & corrections of their answers were made.

Myocardial Infarction in elderly male: All the students presented history on rotation about this case along with relevant investigations after a period of a two months in two classes. There was history of intake of high cholesterol and family history of Myocardial Infarction. Laboratory data were correlated & discussed. Students were advised to read about chest pain from the reference books. Subsequently in next class, differential diagnosis of chest pain was discussed. Students were made to present about differential diagnosis read from reference books. They presented well and corrections were made to all students. Questions were asked to all students & all the students answered well.

Students showed interest in the presentation, discussion and asking questions. All students who took part in the group were very happy because they understood the problems by involving in the small group discussions, reading from the reference books & discussing with facilitators. Hence they felt very happy with Problem Based Learning class which they observed more better than class teaching. Relationship between facilitators and learners improved.

DISCUSSION:

HISTORY: This process was started in the Medical School at McMaster university in Hamilton. Subsequently it was adapted by in the programmes of other Medical schools [4]. Later on it was extended to for under graduate instructions [5,6,7] & for K-12 [4] & [8]. This programme has now been practiced in the areas like engineering, business, social studies, economics, education of law, mathematics & other health sciences [8].

The advantages of PBL is it makes the students to carry out active learning, better understanding & knowledge retention & skill development [Wood Diana-2003] [9]. This type of learning is also useful in solving problem, critical thinking, collaboration, self directed learning skills [10 & 11]. Teachers prefer Problem Based Learning because students are self motivated directed & good team work learning. This type of learning improves relationship between student-Teacher. [12]. Students of Problem based Learning are better than other students because of competency of learning, solving the problem, techniques of self assessment, gathering of data and behavioural science [13]. There was great demand in implementing PBL in educational institutions like schools and Colleges. Azer framed following 12 tips to make PBL a Great Success & called it as 'PURE PBL' which requires planning & organization. According to him, they are.. [14]

1. Prepare faculty for change
2. Establish a new curriculum committee and working group
3. Designing the new PBL curriculum and defining educational outcomes
4. Seeking Advice from Experts in PBL
5. Planning, Organizing and Managing
6. Training PBL facilitators and defining the objectives of a facilitator
7. Introducing Students to the PBL Program
8. Using 3-learning to support the delivery of the PBL program
9. Changing the assessment to suit the PBL curriculum
10. Encouraging feedback from students and teaching staff
11. Managing learning resources and facilities that support self-directed learning
12. Continuing evaluation and making changes.

Due to increasing popularity, PBL was started in many universities & Medical Schools through out the world. In USA, PBL type of learning in their curriculum [more than 80%]. It was started in McMaster Medical School. After 10 years they found positive impact on students progress & they were successful as physician after their graduation. [15] Problem Based Learning was spread to other universities like Maastricht University, St. George's University of London, The University of Limerick, In 1983 the college of medicine and medical sciences, Bahrain as part of the Arabian Gulf University. In 1998, Western University of Health Sciences [16]. In 2002, University of California, Berkeley School of Public Health, commenced 100% Case Based Learning to their students of their

preclerkship & Basic & Pre-Clinical Sciences [17]. In 2002, Gadjah Mada University of Yogyakarta, Indonesia [2002,] started offering an International Medicine program based on problem-based learning [18] Aljuf University of Sakakah, Saudi Arabia and Alfaisal University [Riyadh], [Saudi Arabia] [2008] also commenced all Medical Programmes using PBL [19] Libyan International Medical University of Benghazi, in Libya [2009] also taught all the Medical Programmes using Problem Based Learning. [20]. Problem-Based Learning the Four Core Areas (PBL4C) was introduced as a model of Problem Base Learning in the subject of Secondary Mathematics in Malaysia in 2008. The objective of this model PBL is to educate the citizens in order to make 'sustainable decision' & 'responsible development' [21]. There was great success in teaching through PBL. In 2008 in Australia at Parramatta Marist High School, a secondary Catholic school for the year '9 and 10 boys'. [not cited in wikipedia]

IN THE PRESENT STUDY:

Two problems were studied and discussed under Problem Based Learning. They were Epistaxis observed in a male child aged three years old and other was a case of myocardial Infarction found in 61 years old male. The lab reports were discussed and correlated especially blood report. Differential diagnosis was discussed and final diagnosis was arrived. By doing this type of Problem Based Learning, the relationship between student & teacher improved. There was improvement in their skills self-confidence & interest in solving the problem. Students became so happy that they understood the subject clearly and gave good feedback mainly because of small group.

CONCLUSION

This type of learning increased self-confidence and acquiring knowledge by collective work in the group & through intelligence. It not only accelerated the team work, but also encouraged independent learning essential for future practice as physician, surgeon or paediatrician or orthopedician.

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