Evaluation of Clinical Reasoning Learning for students in SCMS2, pediatrics Module.

Evaluation des séances d'apprentissage du raisonnement clinique auprès des étudiants en DCEM2, module Pédiatrie.

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RÉSUMÉ

Introduction : L'apprentissage du raisonnement clinique (ARC) est une alternative aux formes d'enseignements classiques. Son objectif est d'amener l'étudiant à acquérir une démarche diagnostique pertinente par l'élaboration d'un raisonnement clinique. Le but de notre étude est d'évaluer ces séances en Pédiatrie, auprès des étudiants en deuxième cycle d'étude médicale

Méthodes : Une séance portant sur le thème de «retard de croissance était programmée sous forme d'ARC auprès des étudiants en DCEM2 au cours de leur stage en Pédiatrie. Un pré et un post test étaient administrés ainsi qu'un auto-questionnaire de satisfaction.

Résultats : Deux groupes d'étudiants qui comprenaient vingt-trois étudiants ont participé à la séance. Les notes au pré test variaient de 0/10 à 6.8 / 10 et au post test de 6.5 / 10 à 9/10. La moyenne des notes attribuées au pré et post test respectivement étaient de 4.26 ± 1.37/10 et de 7.35 ± 0.7 / 10 (P<0,001). Vingt-deux étudiants ont rapporté leur satisfaction globale de l'enseignement. La moyenne de la note attribuée à la satisfaction globale était de 4.39±0.49 sur cinq points. La moyenne des notes attribuées à l'apport de l'enseignement de connaissances nouvelles, l'atteinte des objectifs éducationnels, l'interaction, la participation étaient supérieurs à 4.3/5.

Conclusion : Cette forme d'apprentissage en petit groupe semble avoir une légitimité dans l'enseignement de Pédiatrie.

Mots clés : apprentissage, raisonnement, étudiants, évaluation

SUMMARY

Introduction: Learning clinical teaching is an alternative to traditional forms of teaching. Its objective is to lead the student to acquire a relevant diagnostic approach by developing a clinical reasoning. The purpose of our study is to evaluate these sessions in Pediatrics, with students in the second cycle of medical study

Methods: A session on the topic of «stunting» was scheduled as an CRL with second cycle of medical studies 2 (SCMS2) students during their Pediatrics Placement, with a pre and post test administered and a self-administered questionnaire.

Results: Two groups of students that included twenty-three students participated in the session. Pre-test scores ranged from 0/10 to 6.8 / 10 and post-test scores from 6.5 / 10 to 9/10. The average pre- and post-test scores, were respectively 4.26 ± 1.37/10 and 7.35 ± 0.7 / 10 (P <0.001). Twenty-two students reported their overall satisfaction with teaching. The overall rating score was 4.39 ± 0.49/ five points. The average of the ratings for new knowledge delivery, achievement of educational objectives, interaction and participation were greater than 4.3 / 5.

Conclusion: This form of small group learning seems to have legitimacy in Pediatric education.

Keys words: Learning, Reasoning, students, evaluation

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INTRODUCTION

Clinical reasoning (CR) is defined as a set of thought and decision-making processes that allow the doctor to choose the most appropriate actions to solve the clinical problems posed by patients [1]. It is often considered as a diagnostic or therapeutic problem-solving process [2]. The CR located at the heart of medical and nursing practice. Training in CR, a mental activity that is not very observable and not very accessible, is a difficult mission for clinical teachers [3].

To improve CR for medical students, clinical reasoning learning sessions (CRL) have been introduced in many medical schools. CRL is an alternative to traditional forms of teaching, such as lectures and tutorials. Its objective is to lead the student to acquire, within the framework of an initial complaint of a patient, to develop an early generation and an evaluation of diagnostic hypotheses using a directed collection and thus he succeeds to develop a highly organized network of specific knowledge. CRL sessions are done in small groups. The presentation of data related to the clinical problem is presented at the beginning and followed by an interactive discussion under the supervision of a tutor who animates the session and manages the time. During this session, several elements must emerge, such as the development of reasoned diagnostic hypotheses and the prospection for oriented and justified information (anamnesis, physical examination, additional investigations). At the end of the session, an oral synthesis makes it possible to analyze the relevance of the group's work [4].

The teaching by CRL sessions during the hospital internship of externals in Medicine, was recently introduced in our service. The purpose of this work is to assess the value of these Pediatric CRL sessions from the perspective of the graduate medical student.

METHODS

The CRL sessions took place in the Staff Room of the Pediatrics Department of Charles Nicolle Hospital during the second half of 2019-2020, lasting 60 minutes. The target population concerned two groups of students in the second year of medical studies (SCMS2) who were assigned to the service for their hospital internship in Pediatrics. The first group included 10 students and the second group included 13 students. The subject chosen for teaching was "Growth Retardation". The topic was taught in the Faculty of Medicine and in standard practice in pediatrics.

During each CRL session, the focus was on early elaboration and the evaluation of diagnostic hypotheses and on active and oriented restructuring of clinical data. This whole process was done with verbalization aloud by the student of the intermediate stages of clinical reasoning. Within the small group, some students had specific roles. Only one student was aware of the clinical scenario already developed for the CRL session and was playing the role of "data custodian and provider". The clinical scenario document included history data, clinical data, explorations and management data. Another student played the role of the doctor (the initial interviewer) and began the fictitious patient's questionnaire. During the session, the other members of the group intervened when they wished. Another student "secretary" noted on the board the diagnostic assumptions raised during the process, allowing students to systematically return to them during the process. The entire process was done under the supervision of the same teacher who guided the CR process, stimulated, assisted and corrected the elements in diagnostic and therapeutic thinking.

In order to assess the knowledge acquired at the end of this course, we used an identical pre and post test, distributed at the beginning and at the end of the CRL session. This test included a clinical case on the same topic from the CRL session that was growth retardation and had five questions. Each one was scored out of two.

After the post test, a satisfaction survey was administered to the students; it included the following items: the evaluation of the teaching environment, the contribution of this learning method, the teaching atmosphere as well as the overall satisfaction of the session. The rating scale ranged from 1 "not at all satisfied" to 5 "very satisfied".

Data was entered with Excel software. Qualitative variables were expressed as an absolute number or as a percentage; quantitative variables were expressed as an average. The comparison of the mean of the scores for all the pre-tests with those obtained for all the post-tests was obtained by non-parametric Wilcoxon-Mann-Whitney tests. The significance level was set at 0,05.

RESULTS

A total of 23 students participated in this course. The evaluation of learning carried out from the pre-test and post-test scores showed averages of 4.26 ± 1.37 / 10 and 7.35 ± 0.7 / 10 respectively (P <0.001) (Fig 1, Fig 2). Pre-test scores ranged from 0/10 to 6.8 / 10 and post-test scores ranged from 6.5 / 10 to 9/10. Seven students had a false answer to the first question concerning the interpretation of the growth curve in the pre-test, four of which corrected their answers in the post-test. For the first-line assessment for growth retardation, the majority of participants were unaware that kidney function testing is routine (11/23 correct responses in pre-test versus 23/23 correct responses in post-test) and believed that a baseline GH assay should be done (9/23 incorrect responses in pre-test versus only one incorrect response in post-test). Indeed, the average of this question went from 0.96/2 at the post-test to 1.94/2 at the post-test. The majority of students correctly answered the etiology after having had the results of the different explorations (14/23 in the pre-test versus 22/23 in the post-test). Concerning the explorations to be asked when GH deficiency is confirmed, most students corrected their knowledge after the CRL session with 8/23 correct answers in the pre-test versus 19/23 in the post-test.

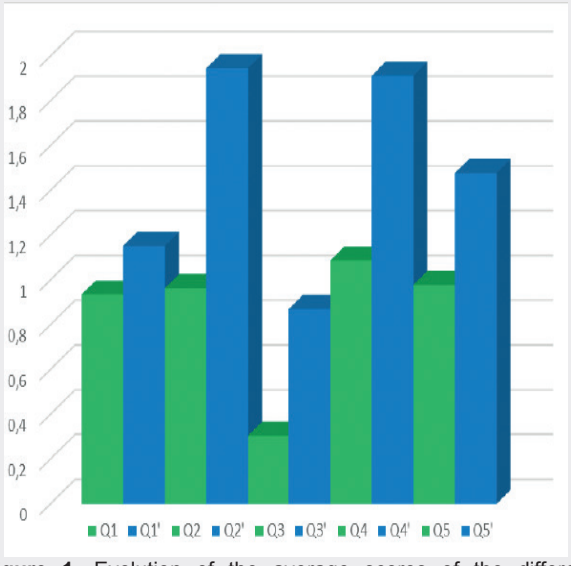

Figure 1. Evolution of the average scores of the different questions in the pre and post Tests

Note : Q: The answer to the pre-test. Q': the answer to the post-test

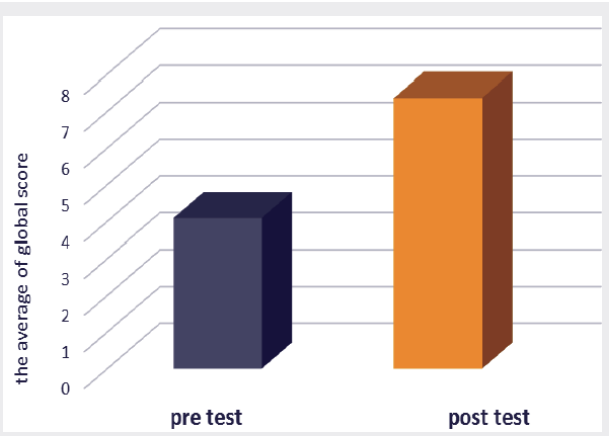

Figure 2. Evolution of the global average of scores from pre to post test

The average of the five-point ratings for overall educational satisfaction was 4.39±0.49. Twenty-three students reported overall satisfaction with teaching. The averages of the five-point ratings given by the students were 4.37±0,47 for the consistency of the session with professional reality, 4.52±0,49 for the contribution of the new knowledge session, 4.47±0.49 for satisfaction with the interaction in the room, 4.47±0,49 for meeting the learning objectives, and 4.34±0,47 for active participation during the session.

DISCUSSION

Our study found that the CRL session improved the students' knowledge. Indeed, the responses on the various items were better in the post-test in most cases (averages of 4.26±1.37/10 in the pre-test versus 7.35±0.7/10 in the post-test). The clinical reasoning learning session allowed the students to gain knowledge and understand the interest of the first-line assessment in front of growth retardation since they better answered this question in the post-test by arguing their answer during the correction. The clinical case presented during the CRL session allowed them to understand the interest of dynamic GH testing given the difference in responses between pre-test and post-test. Recognition of the etiology of growth retardation was straightforward after getting the result of the explorations as the majority of the responses were correct in both tests. But the interest of complementary examinations in the progression of CRL was better understood after the

session. This was assessed through a question on the arguments needed to retain the positive diagnosis. That showed more correct answers in the post-test than in the pre-test.

The majority of students were generally satisfied with the CRL session. SCMS2 students are therefore a population that is particularly well suited to learning by mentoring, and this probably explains a large part of their interest in this type of teaching.

The increase in student CR acquisition during the practicum is the result of the combined effect of all the learning activities that the practicum offers to the student. Clinical exposure, CRL sessions, clinical supervision by teachers, and individual readings can all contribute to improving student CR [3]. An Australian study [5] has shown the value of CR workshops in the training of medical students. Another study [6] revealed the contribution of CRL sessions in the oral presentation of a clinical examination by students. There was a better synthesis of diagnostic hypotheses and greater ease in the presentation of the clinical case. Assessment of CR was higher among students who received CRL sessions [7]. Zairi et al [8], in a Tunisian study which aimed to evaluate CRL sessions with cardiology students, found that the majority of students appreciated this teaching method for the quality of teaching, workload, acquisition of new clinical knowledge and the atmosphere.

It appears from the results of this study that this form of small-group learning has legitimacy in the teaching of pediatrics. However, selection bias and limited sampling are the main limitations of our study. It would be interesting to conduct further research in different clinical contexts in order to verify the transferability of our results and build a model applicable to all specialties.

CONCLUSIONS

This study seems to show an interest in pediatric CRL sessions in the graduate medical school system. This form of teaching appears to be an interesting complement to lectures and deserves to be developed systematically within the framework of medical studies.

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