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CLINICAL RESEARCH

Cross analysis of knowledge and learning methods followed by French residents in cardiology



Analyse croisée des connaissances et des méthodes d'apprentissages des internes et assistants français en cardiologie

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Summary

Background. – No scientific assessment of the theoretical teaching of cardiology in France is available.

Aim. – To analyse the impact of the available teaching modalities on the theoretical knowledge of French residents in cardiology.

Methods. – Electronic questionnaires were returned by 283 residents. In the first part, an inventory of the teaching/learning methods was taken, using 21 questions (Yes/No format). The second part was a knowledge test, comprising 15 multiple-choice questions, exploring the core curriculum.

Results. – Of the 21 variables tested, four emerged as independent predictors of the score obtained in the knowledge test: access to self-assessment ($P=0.0093$); access to teaching methods other than lectures ($P=0.036$); systematic discussion about clinical decisions ($P=0.013$); and the opportunity to prepare and give lectures ($P=0.039$). The fifth variable was seniority in residency ($P=0.0003$). Each item of the knowledge test was analysed independently: the score was higher when teaching the item was driven by reading guidelines and was lower if the item

Abbreviations: CI, confidence interval; MCQ, multiple-choice question; OR, odds ratio.

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had not been covered by the programme ($P < 0.001$). Finally, 91% of students would find it useful to have a national source for each topic of the curriculum; 76% of them would often connect to an e-learning platform if available.

Conclusions. — It is necessary to rethink teaching in cardiology by involving students in the training, by using teaching methods other than lectures and by facilitating access to self-assessment. The use of digital tools may be a particularly effective approach.

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MOTS CLÉS

Enseignement ;
Cardiologie ;
Auto-évaluation ;
E-learning ;
Internes

Résumé

Contexte. — Aucune évaluation scientifique de l'enseignement théorique de la cardiologie en France n'est disponible.

Objectif. — Notre but était d'analyser l'impact des méthodes d'enseignement sur les connaissances théoriques des internes et assistants en cardiologie.

Méthodes. — Deux cent quatre-vingt-trois internes et assistants ont répondu à un questionnaire électronique envoyé à l'ensemble des internes et résidents français. La première partie était un inventaire des différentes méthodes d'enseignement sous la forme de 21 questions Oui/Non. La seconde partie était une évaluation des connaissances théoriques sous la forme de 15 questions à choix multiples couvrant l'ensemble du programme.

Résultats. — Parmi les 21 variables testées, 4 sont ressorties comme étant associées au score obtenu à l'évaluation des connaissances : l'accès à une auto-évaluation ($p = 0,0093$), l'accès à d'autres méthodes pédagogiques que les cours magistraux ($p = 0,036$), la discussion systématique avec un senior des décisions cliniques ($p = 0,013$) et la possibilité pour les internes de préparer et donner eux-mêmes les cours théoriques ($p = 0,039$). La cinquième variable était l'ancienneté ($p = 0,0003$). Pour chaque QCM pris indépendamment, la note est plus élevée si l'information est tirée des recommandations et plus basse si aucune formation n'a été dispensée sur l'item testé par le QCM ($p < 0,001$). Enfin, 91% des étudiants trouveraient utile d'avoir une référence nationale pour chaque item du programme ; 76% se connecteraient souvent à une plateforme de e-learning si elle était disponible.

Conclusions. — Il est nécessaire de repenser l'enseignement en cardiologie en impliquant les étudiants dans l'enseignement, en utilisant des méthodes pédagogiques différentes du cours magistral et en facilitant l'accès à l'auto-évaluation. L'outil numérique semble être une approche adaptée à cet effet.

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Background

The digital revolution leads us to rethink medical education. Diversification of educational facilities and new technologies are already part of the educational arsenal in the world's largest universities. Technological innovations in e-learning help to individualize education (adaptive learning) and improve student/student and student/teacher interactions (collaborative learning). The European Society of Cardiology is currently involved in developing an extensive training programme integrating self-assessment modules [1].

It is intuitive to think that a medical doctor's knowledge is one of the major determinants of quality of care. Thus, the scientific community has a duty to provide evidence-based education to medical residents, as it is currently the standard for medication evaluation.

In France, after the first 6 years of medical school, students have a national examination. According to their ranking, students can choose their specialization. The cardiology residency lasts for 4 years and consists of eight

6-month internships: four in various subspecialties of cardiology; one in vascular medicine or surgery; and three outside the discipline (preferably in internal medicine and intensive care). Conforming to the regulations, the courses represent 250 hours of training, which take place during the 4 years of residency. An exit examination is not needed, but a programme with the educational objectives is offered to students and teachers. The theoretical training of specialized medical residents is based mainly on local, regional or national lectures. Education at the regional level is based on clusters of three to six neighbouring universities, called 'inter-regional areas'. In these areas, residents share lectures, workshops or seminars on a regular basis. National seminars consist of organized meetings for residents in cardiology, during which a major cardiology theme is approached tackled either by a lecture or by a more interactive approach. As showed in unpublished surveys by Moubarak et al., on behalf of the Group of Young Cardiologists appointed by the French Society of Cardiology, satisfaction with education remains low, at around 25–40%.

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