Introduction

Debriefing is essential to learners’ growth. We have therefore introduced the practice of “debriefing conferences” as part of the education of junior residents. Once the core problems and skills required for anesthesiology training were identified, we focused on communication skills as a form of competency within the training. Anesthesiology training is a setting in which discrete areas of knowledge assumed by surgery, including respiration, circulation, central nervous function, metabolism, and postoperative analgesia, are integrated as competencies necessary to a physician, and it is therein that we can expect residents to obtain a glimpse of the achievement of competence as practicing learners. The mentor system is a point of consultation and communication tool for mentees, and has been recognized as having an educational effect in terms of improving research capabilities and contributing to the career development of junior residents.

Abstract

There are few reports concerning the educational effects of mentor systems as they relate to junior residents. In debriefing conferences introduced as educational opportunities for junior residents, participants presented cases they wanted to review, with several senior physicians serving in a facilitator role. The contents were categorized into problems associated with anesthetic management and skills necessary for improving clinical proficiency. We compared changes to the contents of the debriefing conferences before and after the introduction of the mentor system. The core problems for the pre-introduction group consisted of circulation (n=11), airways (n=4), safety (n=2), incidental symptoms (n=2), metabolism (n=4), and pain (n=4). Core skills for the pre-introduction group consisted of anesthesia planning (n=14), emergency response (n=12), and communication (n=4). Core problems for the post-introduction group consisted of circulation (n=17), airways (n=7), incidental symptoms (n=1), metabolism (n=7), systemic assessment (n=1), and central nervous functions (n=3). Core skills for the post-introduction group consisted of anesthesia planning (n=24) and emergency response (n=12). A comparison between the pre- and post-introduction groups found inter-group differences for the core problem of pain (p=0.017) and the core skill of communication (p=0.017). The introduction of the mentor system resulted in changes in pain management and issues with communication.

Key Words: Junior resident, Debriefing, Mentor system, Competency
Mentor systems are also a way of supporting efficient and effective transition in the context of medical activities in other countries. Therefore, we felt that introducing a mentor system into the curriculum for junior residents would facilitate their communication and have a positive impact on their core problems and skills in anesthesiology training. Specifically, we examined the effect of mentor systems on the education of residents by comparing core problems and skills for cases taken up in debriefing conferences before and after the introduction of mentor systems.

Methods

The present study concerned medical residents at the initial stage of clinical training during the 2016 and 2017 academic years. In our hospital, senior doctors are in charge of certified doctors and above, and junior residents manage anesthesia as the first responsible doctor, typically experiencing about 50 cases during 2 months. The participants were divided into two groups, with the 2016 cohort of junior residents, who predated the introduction of the mentor system, categorized as the “pre-introduction group,” and those in the 2017 cohort, who arrived after the introduction of the mentor system, categorized as the “post-introduction group.” The mentor system regarded junior residents as mentees and seven anesthesiologists as mentors. The mentors consists of three specialists, one instructor, and three certified doctors who have a good reputation in terms of education. The mentors acted as proxies when it was not possible to conduct briefings with senior physicians and served as consultants on matters such as how to communicate with various senior physicians and draw up anesthesia plans. The debriefing conference was held with one instructor, one specialist, two certified doctors, and three to four junior residents. The junior residents gave a free-form presentation to discuss problems and questions. The conference ended with the sharing of core problems in anesthetic management and the core skills required for improving clinical proficiency. These data were collected through note-taking. Core problems were classified as circulation, airways, safety, incidental symptoms, body temperature, metabolism, pain, systemic assessment, and central nervous functions, while core skills were classified as anesthesia planning, emergency response, and communication. We compared changes to the content of the debriefing conferences before and after the introduction of the mentor system. Statistical processing was performed using the $\chi^2$ test, with $p < 0.05$ indicating statistical significance. All statistical analyses of recorded data were performed using the Excel statistical software package (Ekuseru-Toukei 2016; Social Survey Research Information Co., Ltd., Tokyo, Japan). Exemption from ethical approval was obtained from an Institutional Review Board. Verbal informed consent was obtained from the participants.

Results

Overall, 63 individuals participated in the study, 27 in the pre-introduction group and 36 in the post-introduction group, resulting in 27 presentations being given in the pre-mentor group, and 36 in the mentor group. The core problems for the pre-introduction group consisted of circulation (n=11, 41%), airways (n=4, 15%), safety (n=2, 7%), incidental symptoms (n=2, 7%), metabolism (n=4, 15%), pain (n=4, 15%), systemic assessment (n=0, 0%), and central nervous functions (n=0, 0%) (Fig. 1). Core skills for the pre-introduction group consisted of anesthesia planning (n=14, 52%), emergency response (n=9, 33%), and
Core problems for the post-introduction group consisted of circulation (n=17, 47%), airways (n=7, 19%), safety (n=0, 0%), incidental symptoms (n=1, 3%), metabolism (n=7, 19%), pain (n=0, 0%), systemic assessment (n=1, 3%), and central nervous functions (n=3, 8%) (Fig. 3). Core skills for the post-introduction group consisted of anesthesia planning (n=24, 67%), emergency response (n=12, 33%), and communication (n=0, 0%) (Fig. 4). A comparison between the pre- and post-introduction groups found inter-group differences for the core problem of pain (p=0.017) and the core skill of communication (p=0.017).

**Discussion**

The results of this study revealed that the content of debriefing conferences changed after the introduction of a mentor system in anesthesiology training. In particular, it became clear that there were significant reductions in terms of pain management as a core problem and communication as a core skill. It is probable that anesthesia planning including postoperative analgesia was improved and the problem of pain control reduced by the mentor system. The mentor system is effective in the sense that it reduces problems related to communication between senior doctors in charge of cases and junior residents. Post-event debriefing and significant event analysis have been reported as educational methods similar to debriefing conferences. When we analyzed the debriefing conferences in terms of content, our impression was that they served to clarify the core problems and skills necessary for individual residents. The debriefing conferences also seemed to be a method for constructively evaluating the extent to which individual residents had mastered core competencies.

With the introduction of the mentor system, the core problem of pain management and issues with communication as a core skill disappeared from the
problems and skills elicited by the debriefing conferences through the introduction of the mentor system seem to have clarified educational priorities in the context of anesthesiology training. If the status quo of medical education in Japan can therefore be made to correspond to the Dreyfus model of skills development as applied to the development of physicians’ proficiencies and Dreyfus’s principle, clinical residents may be considered the equivalent of advanced beginners. There are stages in the growth of doctors from junior residents to instructors; Dreyfus model considers these stages as competencies. Junior residents may be considered the equivalent of advanced beginners, i.e., more skilled than novices but not yet competent. Advanced beginners are required to be capable of 1) determining relevance based on past experience by utilizing rules and information, 2) solving problems using both analytical reasoning and pattern recognition, and 3) summarizing more general aspects of a problem from concrete and specific information. These three items are consid-
The core problems and skills identified from the debriefing conference are considered core competencies in the context of anesthesiology training. Learning these problems and skills is an important objective for anesthesiology training, and itself seems to be a competency that should also be recognized for senior physicians placed in teaching positions.

Conclusion

The introduction of the mentor system resulted in the change of pain management as a core problem in the context of debriefing conferences, as well as issues with communication as a core skill. A mentor system in which individual mentees interact with multiple mentors seems to be an effective method for supporting the development of mentees’ communication skills.

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メンター制度が麻酔科研修に与える教育効果

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メンター制度の初期研修医への教育効果に関する報告は少ない。われわれは初期研修医教育として振り返りカンファレンス（DC: Debriefing Conference）を導入している。DCは初期臨床研修医が自ら振り返りたいと考えた症例を提示し、ファシリテーター役の上級医数名と初期研修医で行った。DCの内容は麻酔管理上の問題点および臨床能力の向上に必要なスキルに分類した。またDCからコミュニケーションに起因する事象が初期研修医にとって問題であることがわかった。コミュニケーションを促進する改善策としてメンター制度を導入し、メンター制度がDCに及ぼす影響を検討した。メンター制度の導入によってDCにおいて疼痛管理とコミュニケーションに関する報告は皆無になった。

キーワード: 初期研修医, 振り返り, メンター制度, コンピテンシー

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