Original Article

The Present State and Problems of Graduate-Entry Programs (GEP) in National Medical Schools in Japan

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It is not certain whether graduate-entry program (GEP) or non-graduate-entry program (non-GEP) in medical education is desirable to foster excellent medical physicians in Japan. In order to clarify the present state and problems of GEP, we visited 27 national medical schools which have introduced limited term college graduate-entry program and discussed with the deans, the education committee and administration affairs.

GEP students are elder and usually study harder than regular non-GEP course students. Therefore, they got the higher grades at 1-2 classes of GEP course than the regular non-GEP course students. However, some GEP students lost motivation to study medicine and got poor grades at higher class. There was no definite difference of the final grades at the graduation between GEP and non-GEP students. Most of GEP students became medical practitioners and few students chose physician scientist majoring in basic medicine.

We did not find any advantage of GEP compared with regular non-GEP. The results show that the introduction of GEP throughout Japan should be discussed carefully.

Key words: graduate-entry program, medical education

Introduction

While the medical education system is diverse in the world [1], medical schools are universally expected to bring up excellent clinical physicians and also superb physician scientists. To meet this aim, we do not know which education system is the best in our country. We are interested in which system is better, graduate-entry program (GEP) or non-graduate-entry program (non-GEP). In Japan, the first GEP trial started in 1975 at Osaka University Medical School [2]. The purpose of this GEP was to foster excellent physician scientists and also clinical physician with profound knowledge in broad spectrum of science. This program was successful and significant numbers of basic medical scientists were turned out. Four hundred and sixty three students entered GEP course in 1975-2004, and 415 students have graduated until 2004. 9.3 % of GEP graduates became physician scientists majoring in basic medicine, while 6.2 % of non-GEP graduates chose basic medicine. 6.3 % of GEP graduates became the director of general hospital, whereas 2.9 % of non-GEP graduates became the director of general hospital. Observing this good outcome, the other medical schools began to introduce GEP since 1998.

At present, 28 national and 8 private medical schools among 80 medical schools in Japan have introduced limited term college graduate-entry program in addition to regular non-GEP. We visited 27 national medical schools which have introduced limited term college graduate-entry program and analyzed the present state and problems with GEP.
Methods

To discuss the present state and problems of GEP in Japan, we visited 27 national medical schools between November 30, 2007 and February 20, 2009; we did not have opportunity to visit 1 national medical school. Eight private medical schools have also introduced GEP until now. Because the admission system is markedly different between national and private schools, we chose the national schools with similar admission system in the present study.

We sent questionnaires about the education system of GEP in advance before visiting the medical schools. They included the admission system, the background of GEP students, the curriculum, the grades, the studying motivation and attitude, and the career path after graduation. We met the dean, the education committee and the administration affairs of each medical school. On the basis of the answers to the questionnaires sent previously, we discussed the advantages and disadvantages of GEP compared with regular non-GEP. Based on the present state and problems of GEP, we discussed the future education system in all medical schools in Japan.

The answers were analyzed statistically and data were summarized. All medical schools in this study agreed that the summarized data obtained in the present study would be reported to the Ministry of Education, Culture, Sports, Science and Technology of Japan and be published in medical Journal.

Results

Each medical school accepts approximately 80 to 120 students per year. Twenty seven medical schools also accept 5 to 20 college graduates in addition to high school leavers of 18-19 years.

The backgrounds of the GEP students are shown in the figure 1 and 2. Most of GEP students enter medical schools at the age of 22 to 30 years. However, approximately 3 % students were over 36 years at admission. About 85 % of the students specialized in natural sciences such as biology, pharmacology, agriculture, engineering, etc., in college. The remaining 15 % of the students specialized in non-natural sciences such as liberal arts, law, economics, etc., in college. The grades in medical school were not significantly different between students who majored in natural sciences and non-natural sciences.

College graduates join regular non-GEP course
students in the 2nd or 3rd year class (Figure 3); they receive medical education for 5 or 4 years, respectively. They take the same education curriculum as the non-GEP students. The education of first 1 or 2 years of the regular course which the GEP students skipped has to be learned by the students themselves. In these cases, a special curriculum is required for the GEP students in addition to the regular course curriculum. The special curriculum makes the burden quite heavy for both students and faculty (Figure 4).

We met the deans, the education committee and/or the administration affairs of each medical school and got the information about the GEP students. Most of them reported as follows. GEP students usually learn with more intensity than non-GEP students. Furthermore some students do very well and can be opinion leaders in their class. There is no friction noted between GEP and non-GEP students. They get the higher grades at 1-2 year class of GEP course than non-GEP students. However, there was no definite difference in final grades at the graduation. Some students lost motivation to study medicine and got poorer grades at graduation than non-GEP students. Namely, GEP students were divided into two groups; some got high scores and others got poor scores. This phenomenon was pointed out in almost all medical schools which have limited term college graduate entry program when compared with the regular non-GEP course. Twenty-four medical schools did not report any friction or trouble between GEP students and regular non-GEP students, but they mentioned that GEP students seemed to be rather isolated from non-GEP students and they made their own group.

These data were shown at our visit. However, the statistical analysis of some of these data was not feasible because of a small number of GEP students and diverse curriculum among medical schools.

Some GEP students failed to pass the national board examination. In 5 medical schools, the percentage of GEP students who passed the national board examination was 75-80%. The passing rate was significantly worse than that of non-GEP students in each school.

Twenty medical schools showed the data of career selection after graduation. The other 7 schools had no information about the career path because those schools introduced GEP quite recently. All graduates from 17 schools became clinical physicians. Only 5 graduates of the other 3 schools selected basic medicine such as pathology or public health. Namely, most of GEP students became medical practitioners, and only a few students became physician scientists majoring in basic medical sciences after graduation. Therefore, one of the main purposes of GEP, fostering superb physician scientists, has not been accomplished in most medical schools which accept GEP.

Finally, we asked the deans of 27 medical schools their opinion for the moving the present non-GEP to GEP in medical education in Japan. Approximately 33% of the deans denied the complete introduction of GEP in Japanese medical schools (Figure 5). Fifty two percent of the deans approved the introduction of GEP course in some medical schools, for example one school at the east area of Japan and another school at the west area, but not in all medical schools. Only 4% approved a complete introduction of GEP in all Japanese medical schools.
Discussion

The regular program in Japanese medical schools is non-GEP; high school leavers of 18 to 19 years enter medical schools and normally study medicine for 6 years. Basically they learn liberal arts, basic medicine and clinical medicine for 4 years and take clinical clerkships for two years. All medical schools have introduced a model core-curriculum proposed by the Ministry of Education, Culture, Sports, Science and Technology of Japan and the students have to pass the common achievement test composed of computer based testing (CBT) and the objective structured clinical examination (OSCE) just before taking the first clinical clerkship. After graduation they have to pass the national board examination and are then obliged to take a residency program in teaching hospitals for 2 years.

Some problems remain to be solved in the present medical education in Japan and the introduction of GEP is considered to give some clues to the solution at least in part. First, the shortage of physicians is now the big issue in Japan [http://www.mhlw.go.jp/stf/houdou/2r9852000000ssez.html]. If the medical education moves from 6 to 4 years program, the number of physicians will increase in two years. Second, there is an argument that 18 to 19 years students may be too young to study medicine. Communication skills and practical skills are very important in medical practice. These skills may be difficult for younger students to master. Third, the number of physician scientists, especially majoring in basic medical sciences such as physiology and biochemistry has been recently decreased dramatically. Some people consider that college graduates with baccalaureate are more interested in research work and are expected to be physician scientists after graduating from medical school.

Some advantages with GEP as compared to non-GEP are pointed out as follows [2, 3-6]. First, more mature students with higher motivation to study medicine are expected to enter medical schools. Communication skills of elder GEP students may be superior to non-GEP students. Second, GEP students usually learn with more intensity than non-GEP students because of the shorter program. Third, some students do very well and can be opinion leaders in their class. Finally, there is no friction between GEP and non-GEP students.

However, some of these advantages reported previously were not confirmed in the present study. Some GEP students lost their motivation to study medicine, got poor grades and failed to pass the national board examination. Although some GEP students became opinion leaders, this seemed just due to elder ages. Other GEP students did not become opinion leaders. These phenomena may be due to either the impertinence of the present GEP or unsuitable curriculum.

Furthermore, there are shortcomings of GEP. GEP requires longer education period to become a physician. As a result, his/her practice time will be shorter in life. The educational expense is higher because of longer educational period, and therefore the students are eager to earn money just after graduation. Consequently, they do not choose basic medicine where they will earn less. The graduates are usually older than non-GEP. The older students do not prefer surgery that requires physical strength, as compared to internal medicine. The admission test is usually hard to pass. The students will vigorously prepare only to pass the entrance examination of the medical school. They may not seriously have the interest in college courses.

As shown, GEP has some advantages compared to non-GEP. However, most of such advantages of GEP should be overcome by reforming the present education system in Japan. For example, the admission system should be improved to select more mature students. The present admission in most Japanese medical schools is mainly dependent on the scores of the paper examinations of each medical school. Precise interview examination should be more effective for the evaluation of the maturity of the examinees. The introduction of elective courses or MD/PhD courses will encourage the students to be physician scientists. On the contrary, the shortcomings of GEP such as the older age of the graduates may not easily overcome. The problems of the shortage of surgeons and rural medical physicians will become worse than the present system.

In taking account of the longer education period and higher expense, we should be careful before introducing GEP throughout Japan.

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