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Original Article

Complete blood count, Vitamin D, Vitamin B12, Hepatitis A and Hepatitis B screening results in students of faculty of dentistry

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Abstract

Aim: To evaluate the blood tests of the students of faculty of dentistry, to complete their vaccination and to start their treatment if necessary depending on the vitamin levels and complete whole blood count.

Material and Methods: The study was conducted between December 2017 and March 2018 in Inönü University Faculty of Dentistry. Three tubes of venous blood sample were collected from all of the students for the tests. The data were analyzed by using SPSS ver. 22.0 software. A value of $p< 0.05$ was considered statistically significant in all tests.

Results: A total of 283 students, 160 (56.5%) female and 123 (43.5%) male, were included in the study. The mean age was 21.7 years. Anemia was detected in 46 (16.2%) of the students. Only 13 (4.59%) students had no HBV immunity and 117 (41.3%) had no immunity against Hepatitis A. Vitamin B12 deficiency was detected in only 20 (7.06%) students, while vitamin D deficiency was detected in 206 (72.79%) students.

Conclusion: Most of the students had vitamin D deficiency and a large number of them were unimmunized against hepatitis A. In order the students to be able to be successful in the pre-service education and to protect both themselves and their patients from infectious diseases, we should check the vitamins and anemia levels, immunity against hepatitis and complete the deficiencies.

Keywords: Dental student; immunization; laboratory tests

INTRODUCTION

The education given in the departments related to health is quite different from the education of other faculties. In particular, the dentists need to be more careful because they work in quite a very narrow area such as the mouth. The students should be taught to work meticulously and to protect themselves against high amount of salivation in the mouth and the risk of infectious prion through mouth tissues. For example, Hepatitis A and B are infectious diseases caused by viruses and can be prevented by immunization. Therefore, it is very important to complete the vaccinations of the students of the faculty of dentistry before they encounter patients, as they will have to be in contact with fluids such as saliva and blood.

On the other hand, if we look through a holistic perspective, although we give modern education to university students, they should be in a completely healthy condition in terms of bio-psycho-social aspects. The World Health Organization defines health as "a state of complete physical, mental and social well-being" of individuals, groups and societies. In this respect, the health of the students who will receive education will affect the quality of education. In this study, we aim to evaluate the results of viral serology tests of students of the Faculty of Dentistry, Inonu University, to complete the vaccination, and to evaluate the vitamin levels and complete blood counts in order to start treatment and complete deficiencies when necessary.

MATERIAL and METHODS

This descriptive study was conducted on 283 students from Inonu University, Faculty of Dentistry, between December 2017 and March 2018. Three tubes of venous blood samples were taken from the antecubital vein. Tests for vitamin B12, vitamin D, Hepatitis A, Hepatitis B

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markers and complete blood count were performed by using Sismis hemogram device and Abott Architect i2000 SR modulators in the laboratories of Turgut Ozal Medical Center Hospital, Inonu University.

Statistical evaluation of the data was performed by using IBM SPSS for Windows version 22.0 software. Arithmetic mean (X) ± Standard Deviation (SD) was used to define quantitative variables. Normal distribution was tested by Kolmogorov-Smirnov test. Pearson chi-square, Fisher's exact test and continuity corrected chi-square analysis were used in the comparison of variables. A value of P<0.05 was considered statistically significant in all tests.

RESULTS

The average age of 283 students was 21.7 and 160 of them were girls (56.5%). We found that 206 students (72.8%) had vitamin D deficiency, 20 (7%) had vitamin B12 deficiency and 46 (16.2%) had anemia. Anemia was present in 45% of female students (28.1% of all ss) and only in one male student. The rate of anemia was statistically significantly higher in female students (p <0.05). We found that 13 students (4.59%) were not immunized against HBV, whereas 117 students (41.3%) were not immunized against Hepatitis A. There was no statistically significant difference between the genders in terms of HAV and HBV immunity (p> 0.05) (Table 1).

Table 1. Comparison of laboratory data of the students of the faculty of dentistry by gender

	Female n/%	Male n/%	p
Non-HAV immune	60 /37.5	57 / 46.3	p>0.05
Non- HBV immune	5 / 3.1	8 / 6.5	p>0.05
Vitamin D deficiency	117 / 73.1	89 / 72.4	p>0.05
Anemia	45 / 28.1	1 / 0.8	**P<0.05**
Vitamin B12 deficiency	10 / 6.3	10 / 8.1	p>0.05

DISCUSSION

In this study, it was aimed to evaluate complete blood count, immunological status of hepatitis A, B viruses, and vitamin B12 and vitamin D levels of the students of the Faculty of Dentistry and to begin the treatment and immunization when necessary. Dentists need to be vaccinated and take necessary safety measures in order to protect their health because they are exposed to oral secretions too often. However, the fact that the students do not have much information on this subject and do not pay much attention to their health due to their age, increases the risks. In the literature, it has been shown that the knowledge levels of dentistry students regarding transmission pathways and protection techniques of viral hepatitis increase when they start their internship (1-3).

There are studies reporting immunization rates of dentistry students to be 32.5% and 51.3% (1,4). In a study conducted on dentistry students in Istanbul, it was reported that 20.7% of the students were not vaccinated for Hepatitis B (5). In a study conducted on dentistry students in United Arab Emirates, the rate of those who were not vaccinated against Hepatitis B was reported to be 5% (6); this rate was found to be 28.3% in Yemen (7). In a study conducted in Nigeria, 83.2% of the dentistry students were immunized for hepatitis B (8). Similarly, in our study, only 4.5% of the dentistry students had not been vaccinated against Hepatitis B. We attribute this low level of non-immunization to the fact that, in our country, Hepatitis B vaccine has been applied since 1998 and Extended Immunization Program has been conducted since 2006 (9).

In the study of Fergus et al. (10), Hepatitis A vaccination rates were 43.7%. In our country, in a study conducted on university students in 2008, the rate of Hepatitis A positivity was 70%. Hepatitis A vaccine is included in the vaccination calendar in 2013. Children who were born before 2013 had been vaccinated for hepatitis A on voluntary basis. In our study, the ratio of non-immune students was found to be 41.3%. It was known that the students in our study were not vaccinated because they were born before 2003. We advocate that improvements in hygiene conditions in our country reduce the rate of children infected with HAV. However, given that there is still a high ratio of non-immunity in our country, it is necessary to include dentistry students in a vaccination screening program when they begin school, and to complete immunization.

From another prospective, healthy eating refers to supplementing sufficient amount of all nutrients in accordance with the bio-psycho-social condition of an individual. In adolescence, energy and nutrient requirements of an individual are much more than in adulthood (11). Absence of a balance between the requirements and intake in adolescents leads to anemia. The most common symptoms of anemia are weakness, fatigue, tachycardia, lack of attention, forgetfulness and learning difficulties. This situation compromises students ability to learn. In a study in Australia (12), 11.5% of females and 8.7% of males were diagnosed with anemia. In a study conducted to determine the prevalence in Thailand, anemia was detected in 21% of female university students (13). In our country, in the study of Karakoyun et al. (14) anemia rate was 0.6% for female students and 0.8% for male students. In our study, the rates of anemia were found to be 28.1% in girls, 0.8% in men and 16.2% in general. The fact that 97.8% of the patients with anemia were female suggests that it is more frequent among female students due to menstrual blood loss. Anemia is a public health problem and can be treated with very simple measures. It is very important to determine the etiological cause and to take the necessary precautions. A balanced nutrition and not skipping meals are the main protective measures. However, university students may be anemic because of reasons such as anxiety of exams, not to miss classes, or skipping meals to avoid gaining weight. For this reason, we suggest that financial support and regular

training on nutrition should be provided to university students in order to ensure balanced nutrition.

Although the main source of vitamin D is intake through the sun and skin, a small part of it is obtained through diet. Vitamin D deficiency leads to bone mineral deficiency, osteoporosis, type 1 DM, rheumatoid arthritis, and several other chronic diseases (15,16). In recent years, due to increased awareness of sun protection, vitamin D deficiency has increased considerably and it has begun to be accepted as a public health problem. In our study, vitamin D deficiency was detected in 72.79% of the students. This high rate, which is quite high for our country where sunlight is available in all the four seasons, can be attributed to the fact that, in this region, young people spend more time indoors, usually busy with computer, instead of going outdoors.

CONCLUSION

Viral Hepatitis is a growing public health problem worldwide. In our study, we found that many of our students are not immunized against Hepatitis A. Our findings suggest that HAV and HBV serologies should be examined and necessary immunizations should be completed when students join the Faculty of Dentistry. As a result, in order for the students to be able to be successful in the pre-service education and to protect both themselves and their patients from infectious diseases, students should be scanned for infectious diseases, anemia, and vitamin deficiencies, and necessary vaccinations should be performed and deficiencies should be treated.

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