

КОРОТКИ ПОВІДОМЛЕННЯ SHORT REPORTS

УДК 616.98:578.834.1]-036/22_054/6-057/875^378/4(477.84)
DOI 10.11603/bmbr.2706-6290.2021.2.12346

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INCIDENCE OF COVID-19 AMONG INTERNATIONAL STUDENTS OF TERNOPIL NATIONAL MEDICAL UNIVERSITY: A QUESTIONNAIRE STUDY

Incidence of COVID-19 among international students of Ternopil National Medical University: a questionnaire study

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Summary. SARS-CoV-2 became a global pandemic challenge for billions of people by reaching people of different nationalities and age groups. Ukraine lists 80470 foreign students who are enrolled into university studies. Ternopil National Medical University (TNMU) includes 2414 foreign students who are enrolled in university studies with the biggest majority of Indian students.

The aim of the study – to assess the incidence of COVID-19 in students and identify the possible predisposing factors for disease appearance among the foreign students of TNMU.

Materials and Methods. The study included 641 medical students of TNMU from different countries. The questionnaire included 8 questions to evaluate the presence of risk factors among TNMU foreign students and identify the percentage of students who were already exposed to COVID-19.

Results. The amount of students that proved PCR-confirmed COVID-19 infection since the start of the pandemic equaled 7.17% (n=46). An evident contact with COVID-19 case prior to the personal disease appearance was proved by only 11.85 % of students (n=76). PCR-confirmed cases in families of TNMU foreign medical students equaled 14.35% (n=92).

Conclusions. General incidence of COVID-19 among foreign students of TNMU is low. It is influenced by multiple factors including healthy lifestyle, small amount of smokers, and absence of chronic respiratory problems, current lockdown measures, good physical and mental health status.

Key words: COVID-19; pandemic; medical students; disease occurrence; distribution.

Захворюваність на COVID-19 серед іноземних студентів Тернопільського національного медичного університету: анкетне опитування

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Резюме. SARS-CoV-2 став глобальним пандемічним викликом для мільярдів людей шляхом ураження різних національностей та вікових груп. Україна налічує 80 470 студентів-іноземців, котрі здобували освіту в нашій країні та продовжують навчатися. Тернопільський національний медичний університет (ТНМУ) імені І. Я. Горбачевського МОЗ України налічує 2414 іноземних студентів, які навчаються, з найбільшою часткою студентів з Індії.

Метадослідження – оцінити поширеність COVID-19 серед іноземних студентів-медиків та визначити можливі фактори схильності до розвитку хвороби серед іноземних студентів-медиків у ТНМУ.

Матеріали і методи. Дослідження включало 641 іноземного студента-медика ТНМУ з різноманітних країн. Опитувальник склали з 8 запитань із метою оцінки наявності факторів ризику серед студентів-іноземців та визначення відсотка студентів, котрі перенесли або мали експозицію до COVID-19.

Результати. Кількість студентів, у яких було підтверджено захворювання на COVID-19 методом полімеразно-ланцюгової реакції (ПЛР) від початку пандемії становив 7,17 % (n=46). Явний контакт із хворими пацієнтами на COVID-19 до появи захворювання було констатовано лише у 11,85% студентів (n=76). ПЛР підтверджені у сім'ях студентів і становили 14,35 % (n=92).

Висновки. Сумарна поширеність COVID-19 серед іноземних студентів-медиків ТНМУ є низькою. Це є наслідком багатьох чинників, зокрема ведення здорового способу життя, малою кількістю курців, відсутністю супутньої хронічної патології, наявністю карантинних обмежень, достатнім рівнем фізичного та психічного здоров'я.

Ключові слова: COVID-19; пандемія; студенти-медики; частота захворювань; розподіл.

INTRODUCTION

The novel coronavirus SARS-CoV-2 became a global pandemic challenge for billions of people by reaching all the continents around the globe. The first cases of COVID-19 were reported on December 12, 2019 by Wuhan Municipal Health Commission in China [1, 2, 4]. The first patients diagnosed with this specific viral infection had previous exposure to wildlife animals in Wuhan markets. On January 24, 2020 World Health Organization (WHO) confirmed first confirmed cases of COVID-19 in France that proved the entrance of this infection into European continent [8].

The first confirmed COVID-19 infection in Ukraine appeared on March 3, 2020 in Chernivtsi in Ukrainian male who arrived back to Ukraine from Italy. For the end of the year on December 31, 2020 COVID-19 incidence in Ukraine since the start of the pandemic was 1 055 047 cases with 18 533 deaths [7].

Ukraine lists 80470 foreign students who are enrolled into university studies. The biggest amount of students are coming from India (22.90 %), Morocco (10.23 %) and Azerbaijan (6.80 %) [6].

Ternopil National Medical University (TNMU) lists 2414 foreign students who are enrolled in university studies with the biggest majority of Indian students.

The aim of the study – to assess the incidence of COVID-19 and identify the possible predisposing factors for disease appearance among the foreign students of Ternopil National Medical University.

MATERIALS AND METHODS

The study included 641 undergraduate medical students of TNMU from different countries. Prior to the start of the research the permission from university authorities and Ethics Committee was received as well as personal consent from every student to prove their voluntary participation in the study. The questionnaire included 8 questions to evaluate the presence of risk factors among TNMU foreign students and identify the percentage of students who were already exposed to COVID-19.

The questionnaire was introduced to students via Google form. A total amount of 641 students partici-

pated in the questionnaire study within one-month period. The data was statistically evaluated using Microsoft Excel version 15.0 (2013).

RESULTS AND DISCUSSION

641 foreign medical students of Ternopil National Medical University from different countries participated in the study. The gender distribution was as follows: males – 55.3 % (n=355) and females – 44.6 % (n=286). The average age was from 18 to 37 years. The countries of origin of the students who participated in questionnaire were India 69.2 % (n=444), Nigeria 9.98 % (n=64), Ghana 7.02 % (n=45), Poland 5.92 % (n=38), Pakistan 1.40 % (n=9), Zimbabwe 1.40 % (n=9) and other various multiple countries including Egypt, Kenya, Namibia, Afghanistan, Kongo that in total equaled 5.08 % (n=32) (tabl., fig.).

The primary goal of questioning students was to identify their risk factors for respiratory pathology. Chronic obstructive respiratory problems, including chronic obstructive pulmonary disease (COPD) and asthma in the past were identified in 4.68 % of students (n=30) who participated in the study. Pneumonia in the past was observed in little higher amount of students that equaled 6.25 % (n=40). Major health-related events, including previous hospitalizations or surgeries were observed only in 3.27 % of students (n=21). Smoking as a habit was proved only in 6.39 % (n=41) of foreign medical students that shows their good awareness about the importance of a healthy lifestyle and refusal from smoking on their general health status.

The secondary goal of questionnaire was to identify the level of anxiety about COVID-19 among students. It is considered as important predisposing factor for mental health instability especially during the pandemic and effects of mass media. The level of anxiety about COVID-19 was identified in 26.68 % of foreign medical students (n=171).

The third part of the study was aimed at evaluation of COVID-19 incidence in students and their families, identification of the contacts with COVID-19 confirmed patients. The amount of students that proved PCR-confirmed COVID-19 infection since the start of the pandemic equaled 7.17 % (n=46). An evident contact

Table 1. Students' responses regarding the risk factors and incidence of COVID-19

Question	Responses	
	Yes	No
Chronic respiratory problems (Asthma, COPD)	30 (4.68 %)	611 (95.32 %)
Smoking	41 (6.39 %)	600 (93.61 %)
Pneumonia in the past	40 (6.25 %)	601 (93.75 %)
Major health-related events	21 (3.27 %)	620 (96.73 %)
Anxiety about COVID-19	171 (26.68 %)	470 (73.32 %)
Contact with a person who had PCR + COVID-19	76 (11.85 %)	565 (88.15 %)
PCR + COVID-19 in close family members	92 (14.35 %)	549 (85.65 %)
PCR + COVID-19	46 (7.17 %)	595 (92.83 %)

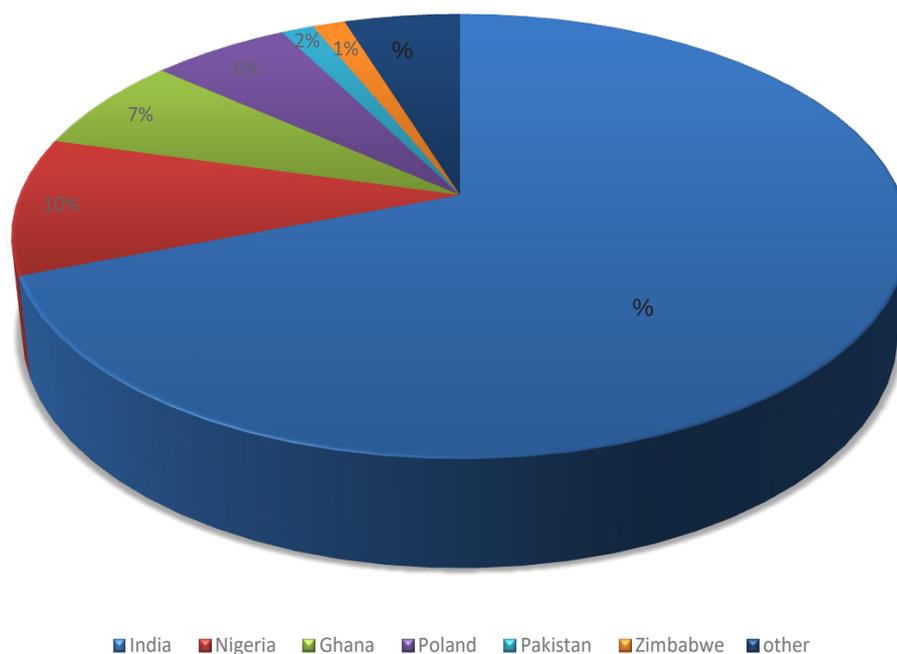


Figure. The countries of origin of students who participated in study.

with COVID-19 case prior to the personal disease appearance was proved by only 11.85 % of students (n=76). PCR-confirmed cases in families of TNMU undergraduate foreign medical students equaled 14.35 % (n=92).

There were some studies performed to evaluate demographic, gender, nationality and age variations, risk factors of young students who had COVID-19 infection. Leidman et al published results of their study and proved that young adults have lower incidence and smaller amount of cases with severe course of the disease [5].

But according to the U.S. Centers for Disease Control and Prevention (CDC), over the summer, in the United States, people under age 30 accounted for more than 20 % of COVID-19 cases and were seen as more likely to transmit the virus than others. This trend has continued into the fall.

Data from one study shows that more than 3,000 adults aged 18 to 34 who contracted COVID-19 and became sick enough to require hospital care, 21 % ended up in intensive care, 10 % were placed on a breathing machine and 2.7 % died [3].

Our study was limited to just one university though Ukraine has huge amount of foreign students studying in multiple Ukrainian universities. It would be much broader evaluation if there was an opportunity to engage other foreign students from other Ukrainian universities into this study.

Our opinion is that the analysis and evaluation of local disease occurrence and distribution is extremely important in order to observe the course of the disease and its trends. It makes big contribution by limiting health care providers from big patients overload and lets the healthcare system function more effectively during pandemic times.

CONCLUSION

We can summarize that general incidence of COVID-19 among foreign students of TNMU is low. It is influenced by multiple factors including healthy lifestyle, good physical and mental health status, small amount of smokers, and absence of chronic respiratory problems, current lockdown measures.

It also can be explained by possible big amount of asymptomatic COVID-19 infections among healthy young individuals, which makes a huge positive contribution on pandemic course with smaller overload of healthcare systems in different countries and faster acquisition of global immunity that may lead to faster end of the pandemic.

Acknowledgements. All participants formed an integral part of this study, without which the study would have been realizable. We appreciate their voluntary contributions.

Conflict of interest. The authors report no conflict of interests.

Funding. There was no funding provided for this study.

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Received 15.05.21