Evaluation of Knowledge and Awareness among Dental Students and Private Dental Practitioners about the Emerging Trend of Travel Medicine in and around Kanpur City

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Abstract

Context: For the evaluation of knowledge among dental students and practitioners. Aims: Travelers play a significant role in the spread of infections across various international borders, through their travel patterns. The aim of this study was to evaluate the knowledge and awareness among dental students and dental practitioners regarding the emerging trend of travel medicine in and around Kanpur city. Settings and Design: A descriptive, cross-sectional questionnaire study was performed. Subjects and Methods: The present study was performed at a private dental college in Kanpur from June to July 2018. A total of 450 dental students and dental practitioners of both genders were included in the study. Statistical Analysis Used: The collected data were analyzed by using appropriate statistical software. Results: A total of 190 males and 260 female respondents participated in the study, out of which 130 participants were married and 320 were single. Seventy respondents were aware of the concept of travel vaccines, whereas 30 respondents could give correct definition of travel medicine. Knowledge regarding travel medicine was found to be very poor, 310 of the total respondents were unaware of the uptake of travel vaccine. Conclusions: The present study suggests that, by increasing the knowledge regarding travel medicine uptake through various educational programs not only among dental students and dental practitioners but also among their families, the more uptake of travel medicine will be helpful in preventing various disease spread as these dental professionals may be helpful to educate their patients regarding vaccination during traveling.

Keywords: Awareness, dental, knowledge, practitioners, students, travel medicine

Introduction

The tourist industry is one of the biggest and rapidly growing economic sectors of the whole world and has a wide-ranging impact on receiving countries and their economies. Easy travel has led to a quick growth in international tourism, particularly to developing and Asian countries. With this increase, travel-related morbidity and mortality has changed.¹ Traveling may be either for business or pleasure and while planning the travel tours, knowledge about the local diseases of the visiting country, including travel medicine and vaccines, should be kept in mind. Travelers not only play an important role in exposure to diseases for both themselves and the country they are visiting, but also bring about adverse health outcomes outside their home country, which may import various systemic diseases that are nonendemic to their country of origin.¹ ² Many believe that travel medicine is new; to the best of our knowledge, the term was created and defined in the early 1980s, so the concept is old.³ Travel medicine not only includes diagnosis, but also the treatment of returning travelers from travel tour. In the today’s era, every generation travels more frequently and at extended distances than the older generation with a mean increase of 30 million travelers per year from 1995 until today,⁴ thus making the physicians throughout the world tackle various new diseases every day.⁴ It has been estimated that approximately 10% of travelers to developing countries experience a febrile illness, during or immediately after travel; this implies that every year, roughly 4 million
travelers appeal to specialized health care, either abroad or at home, because of systemic febrile illness, diarrhea, or dermatologic disorders. Most travel-related illnesses are preventable by immunizations, prophylactic medications, or pretavel health education. Travel medicine is devoted to the health of travelers who visit foreign countries, and it is represented by the society – the International Society of Travel Medicine – and by an active clinical group within the American Society of Tropical Medicine and Hygiene. Due to a drastic increase in travel activity, especially to tropical countries, pretavel advice consultation is acquiring its importance, and all prospective travelers should have their health history reviewed for the possible health risks of the planned itinerary and should collect the information such as the dates, duration, routes, style of travel (budget/luxury), accommodations, and activities (business/leisure) prior to their travel schedule.

Travelers across the borders may play a major role in the spread of some of the communicable diseases which are under control in particular countries. In this type of condition, vaccination plays a major role in the complete control or spread of travel-associated communicable diseases. It has been observed that risk estimation of travel-associated sickness and the knowledge of its prevention does not seem to be well documented among Indian doctors including the dentists and medical practitioners. A large proportion of traveling diseases may be preventable through adequate vaccination, highlighting the importance of the knowledge that the health-care practitioner should have on travel vaccination. The aim of this study was to evaluate the knowledge of risk for travel-related diseases, and also the awareness toward uptake of vaccines before travel among dental students of a private dental institution and private dental practitioners in and around Kanpur city.

Subjects and Methods

This cross-sectional study was conducted among dental students and dental practitioners of both genders in and around Kanpur city from June to July 2018 after taking ethical clearance from the Institutional Ethics Committee. All dental students and dental practitioners above 18 years of age were enrolled after obtaining their verbal consent. After understanding the purpose of the study, totally 450 participants agreed to respond to the descriptive self-structured questionnaire. Scoring and grading of responses for knowledge of travel medicine was done and calculated. The questionnaire consisted of five main questions based on the knowledge of travel medicine with 13 possible responses. Only eight of these responses were correct. One mark was awarded for each correct response and no mark was awarded for a wrong response or I don’t know response, and a total of eight maximum attainable scores were used for the knowledge of travel medicine. A score of 0–2 marks out of 8 marks was graded to be poor knowledge, 3–5 as fair knowledge, and a score of 6–8 marks out of 8 marks was graded as good knowledge.

Results

A total of 450 dental students and dental practitioners in and around Kanpur city participated in this study for the evaluation of knowledge and awareness about the emerging trend of travel medicine.

Regarding sociodemographic characteristics of the respondents, 280 (62.22%) dental students and dental practitioners were in the age group of 18–30 years, whereas 40 (8.88%) were in the age group of 31–40 years. Final-year dental students were more in number (120 [26.67%]) compared to interns who were 70 (15.56%) in number, and a total of 150 (33.33%) dental practitioners were part of the study. Of the total 190 (42.2%) male and 260 (57.7%) female respondents, 130 (28.8%) participants were married and 320 (71.1%) were single [Table 1].

Only 70 (15.5%) respondents had knowledge of travel medicine, whereas 380 (84.4%) had no clue regarding travel medicine concept. Out of the 450 participants, only 30 (6.7%) could give the correct definition of travel medicine. A total of fifty (11.1%) dental doctors and dental student respondents had good knowledge of travel medicine [Table 2].

Table 1: Sociodemographic characteristics of the respondents (n=450)

| Characteristics          | Frequency, n (%) |
|--------------------------|------------------|
| Age group (years)        |                  |
| 18-27                    | 280 (62.22)      |
| 28-37                    | 40 (8.88)        |
| 38-47                    | 130 (28.90)      |
| Sex                      |                  |
| Male                     | 190 (42.22)      |
| Female                   | 260 (57.78)      |
| Qualification            |                  |
| III year BDS             | 110 (24.44)      |
| IV year BDS              | 120 (26.67)      |
| Intern                   | 70 (15.56)       |
| Dental practitioners     | 150 (33.33)      |
| Marital status           |                  |
| Single                   | 320 (71.11)      |
| Married                  | 130 (28.89)      |

Table 2: Knowledge about travel medicine (n=450)

| Parameters               | Frequency, n (%) |
|--------------------------|------------------|
| Awareness of travel vaccines |                  |
| Yes                      | 70 (15.56)       |
| No                       | 380 (84.44)      |
| Definition of travel medicine |                  |
| Correct                  | 30 (6.67)        |
| Incorrect                | 420 (93.33)      |
| Level of knowledge       |                  |
| Poor                     | 310 (68.89)      |
| Fair                     | 90 (20)          |
| Good                     | 50 (11.11)       |
Regarding the uptake of travel medicine in the present study, only 80 (17.7%) participants among the 450 had a history of international travel and a total of 45 (56.2%) had taken the vaccination for the destination countries in their last international travels. Yellow fever vaccine and hepatitis B (30 each [37.97%]) were the most commonly received medicines by the respondents for their international travel. Other vaccines received were meningococcal vaccine (10 [12.6%] cases) and typhoid vaccine (9 [11.4%] cases). The reasons adducted for low uptake of travel vaccination in this study were paucity of information of travel vaccination in 400 (83.3%) participants, distressing protocol and requirement for travel vaccination in 80 (17.7%) participants, poor monitoring on uptake of required vaccines for international travels by relevant authorities in 240 (53.3%) participants, and financial constraints in 230 (51.1%) participants [Table 3].

On evaluation of the relationship between factors and uptake of travel medicine, majority of the participants were within the age group of 18–30 years and mostly were females of which 29 participants had good knowledge of travel medicine of whom 26% had taken vaccines [Table 4].

**DISCUSSION**

Travel may be the only risk factor for infectious diseases that are well controlled in the travelers’ country of residence, particularly vaccine-preventable diseases such as hepatitis A, typhoid, polio, and measles. The role of vaccination among travelers is an essential component of the control of travel-associated infectious diseases.[9]

In the present study, 280 (62.2%) dental students and dental practitioners were in the age group of 18–30 years, which was similar to studies by Heywood et al.[10] (133 [59.2%]) and Upadhyay et al.[9] (69 [60.53%]). In our study, there was a female predominance (260 [57.78%]) similar to the studies done by Heywood et al.[10] (111 [49.3%]), whereas there was a male predominance in the studies conducted by Upadhyay et al.[9] (68 [59.65%]) and Hassan and Afolaranmi[11] (135 [71.4%]). Majority of the participants in the present study were single (320 [71.11%]), which was in coincidence with the studies conducted by Upadhyay et al.[9] (93 [81.58%]) in Madhya Pradesh, India, whereas the number of participants married was 130 (28.89%) in our study similar to studies by Heywood et al.[10] (107 [47.6%]) and Hassan and Afolaranmi[11] (118 [62.4%]) in Nigeria. A total of 150 (33.33%) dental practitioners and 70 (15.56%) graduates participated in the present study, which is found to be almost similar to the study done by Heywood et al.[10] (138 [61.3%]) and (81 [36.0%]), respectively.

According to the present study, very limited number of participants (70 [15.5%]) were aware of the travel medicine, which was quite low as compared to studies done by Upadhyay et al.[9] (101 [88.6%]), Hassan and Afolaranmi[11] (182 [96.3%]), and Toovey et al.[12] (86%), whereas in the present study, 380 (84.44%) respondents were unaware of travel medicine concept. In the present study, only 30 (6.6%) participants were aware of the correct definition of the travel medicine, which was found to be quite low as compared to studies done by Upadhyay et al.[9] (101 [88.6%]) and Hassan and Afolaranmi[11] (141 [74.6%]). Only 50 (11.1%) participants had a good level of knowledge regarding travel medicine, which was found to be low in contrast with the results of the study conducted by Hassan and Afolaranmi[11] (128 [67.7%]), whereas 310 (68.89%) participants of the present study had no knowledge about travel medicine, similar to the study done by Guerrero–Lillo et al.[13] (78.5%).

In the present study, yellow fever and hepatitis B vaccines were the most commonly received vaccine by 30 (37.97%) respondents who had traveled internationally, which was in consistent with the results obtained from the study conducted by Upadhyay et al.[9] where yellow fever vaccines (35 [94.5%])

| Table 3: Uptake of travel medicine (n=450) |
|-------------------------------------------|
| Parameters | Frequency, n (%) |
| History of international travel | |
| Yes | 80 (17.78) |
| No | 370 (82.22) |
| Uptake of travel vaccine in the last international travel | |
| Yes | 45 (56.25) |
| No | 35 (43.75) |
| Type of vaccine received | |
| Yellow fever vaccine | 30 (37.97) |
| Meningococcal vaccine | 10 (12.65) |
| Hepatitis B vaccine | 30 (37.97) |
| Typhoid vaccine | 9 (11.41) |
| Reasons for uptake of travel medicine | |
| Paucity of information | 400 (88.8) |
| Distressing protocols | 80 (17.7) |
| Financial constraint | 230 (51.1) |
| Poor monitoring | 240 (53.3) |

| Table 4: Relationship between factors and uptake of travel medicine |
|-------------------------------------------------------------|
| Characteristics | Uptake of travel medicine | Total | P |
| Age group (years) | | | |
| 18-28 | No (n=25) | Yes (n=55) | 24 | 0.621 |
| 29-39 | 10 | 26 | 36 |
| 40-50 | 9 | 11 | 20 |
| Sex | | | |
| Male | 18 | 20 | 38 | 0.122 |
| Female | 7 | 35 | 42 |
| Level of knowledge | | | |
| Poor | 15 | 17 | 32 | 0.02 |
| Fair | 7 | 12 | 19 |
| Good | 3 | 26 | 29 |

P<0.05 statistically significant
were the most received one followed by hepatitis B vaccine (30 [81.08%]); in a study by Hamer and Connor[14] where hepatitis B vaccination was 13%; whereas in the study done by Toovey et al.,[12] yellow fever vaccination was found to be 76%, which was quite high in number as compared to the present study. The reasons stated by the participants for low uptake of travel vaccination in this study were paucity of information of travel vaccination in 400 (83.3%) participants, followed by poor monitoring on uptake of required vaccines for international travels by relevant authorities in 240 (53.3%), financial constraints in 230 (51.1%), and lastly distressing protocol in 80 (17.7%) respondents, which was found to be contrast to a study done by Upadhyay et al.[9]

Majority of the participants fell within the age group of 18–30 years and were females, of which 29 participants had good knowledge of travel medicine of whom 26% had taken vaccines. A significant relationship was found between the level of knowledge and vaccine uptake \( (P = 0.02) \), contradictory to the results obtained in the study conducted by Guerrero-Lillo et al. in Chile.[13]

**Conclusions**

Hand in hand with traveling comes protection against travel-related diseases, which can be achieved on an individual and a population level. As preventive travel medicine covers multiple fields, from training to vaccination, individual and population-wide protection can be achieved on these different levels. The drawback of this study included small number of participants and single location. Despite these limitations, in the present study, we have found some important neglected aspects that a majority of participants were not aware of the new concept of travel medicine while frequently traveling internationally. The perception that advice given by travel agents is of a lower quality is in accordance with independent assessments of accuracy and adequacy. Continuous monitoring is essential to be able to impart adequate knowledge and awareness about travel health advice. The new generations of health professionals not only need information about prevention, but also the epidemiological evolution to adequately and rapidly diagnose and treat imported diseases, possibly using new diagnostic tools.

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**Conflicts of interest**

There are no conflicts of interest.

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