Problemy zdrowotne podróżnych wyjeżdżających do krajów o odmiennej strefie klimatycznej – doniesienie wstępne

Health-related problems of people travelling to countries in different climatic zones – preliminary report

Katarzyna Van Damme-Ostapowicz[1], Elżbieta Krajewska-Kułak[1], Robert Flisiak [2], Henryka Mięgoć[2], Krystyna Kowalczuk[1]

[1] Zakład Zintegrowanej Opieki Medycznej, Uniwersytet Medyczny Białystok
[2] Klinika Chorób Zakaźnych i Hepatologii, Uniwersytet Medyczny w Białymstoku

AUTOR DO KORESPONDENCJI:
Katarzyna Van Damme-Ostapowicz
Zakład Zintegrowanej Opieki Medycznej
Uniwersytet Medyczny w Białymstoku
Ul. M. Curie-Skłodowskiej 7a
15-096 Białystok
Tel/fax. /85/ 748 55 28
E-mail: katarzyna.ostapowicz@gmail.com

STRESZCZENIE

PROBLEMY ZDROWOTNE PODRÓŻNYCH WYJEŻDŻAJĄCYCH DO KRAJÓW O ODMIENNEJ STREFIE KLIMATYCZNEJ – DONIESIENIE WSTĘPNE

Wprowadzenie. Mobilność ludzi między kontynentami w dniu dzisiejszym jest coraz bardziej powszechna. Świat niektórzy określają jako globalna wioska, a podróże do krajów tropikalnych stają się coraz bardziej popularne. Wielu obywateli polskich wyjeżdża co roku, do stref międzyzwrotnikowych a znaczny odsetek nie ma żadnych wiadomości o zagrożeniach zdrowotnych występujących w kraju docelowym. Fakt ten przekłada się na konieczność zwracania, większej uwagi na problemy dotyczące podróży i profesjonalne podejście, co pomoże zapobiec powstaniu wielu chorobom, kalectwu oraz groźnemu rozprzestrzenieniu się choroby w społeczeństwie, a nawet śmierci pacjenta.

Cel pracy. Celem pracy była samoocena stanu zdrowia fizycznego 40 osób, po powrocie do Polski, z kraju o odmiennej strefie klimatycznej.

Materiał i metody. Badanie przeprowadzano w grupie 40 pacjentów Poradni Chorób Tropikalnych Kliniki Chorób Zakaźnych i Hepatologii UMB w roku 2009/2010 w oparciu o autorski kwestionariusz ankiety.

Wyniki badań. Większość respondentów deklarowała następujące ryzykowne zachowania podczas pobytu za granicą: spożywanie „lokalnych przysmaków" niewiadomego pochodzenia (88%), napojów z lodem (90%) oraz mycie zębów wodą z kranu (43%). Dolegliwości żołądkowe ankietowanych (87%) rozpoczęły się jeszcze podczas pobytu zagranicą. Pięć osób przyjmowało leki przeciwmalaryczne i zgłaszało w związku z tym występowanie takich dolegliwości, jak: zawroty głowy, nudności, uczucie ospałości, halucynacje. Prawie wszyscy respondenci (95%) deklarowali, że wypijali minimum 2 litry wody dziennie. Większość ankietowanych (90%) zażywało kąpieli słonecznych bez względu na godzinę, w ciągu całego dnia. Preparatów z filtrem UV używało 85% badanych, zaś noszenie nakrycia głowy i okularów przeciwsłonecznych zadeklarowali wszyscy badani (100%). Oparzenie słoneczne pierwszego stopnia zgłosiło 45% ankietowanych.

Wnioski. Pacjenci powracający z kraju o odmiennej strefie klimatycznej zgłaszali dolegliwości związane z biegunką podróżnych, oparzeniem słonecznym i stosowaniem chemioprofilaktyki przeciwmalarycznej. Uzyskane wyniki mogą sugerować, iż pacjenci nie posiadali wystarczającej wiedzy z zakresu profilaktyki zdrowia związanej z wyjazdem do krajów odmiennej strefy klimatycznej i niskim standardzie życia.

Słowa kluczowe: **podróżny, biegunka, oparzenie słoneczne, malaria.**

ABSTRACT

HEALTH-RELATED PROBLEMS OF PEOPLE TRAVELLING TO COUNTRIES IN DIFFERENT CLIMATIC ZONES – PRELIMINARY REPORT

Introduction. Currently, the mobility of humans between continents is increasingly common. The world is sometimes referred to as a global village, and travels to tropical countries are more and more popular. Many Polish citizens travel every year to the tropics, and the vast majority of them have no knowledge of health-related risks associated with their country of destination. That fact translates into the necessity to draw attention to travel-related problems and to a professional attitude that can prevent many diseases, disability and the dangerous spreading of diseases in a society, and even patients' death.

Aim. The purpose of the study was the self-evaluation of the physical health condition of 40 individuals who returned from a country

located in a different climatic zone.

Material and methods. The study was conducted in a group of 40 patients of the Clinic of Tropical Diseases at the Department of Contagious Diseases and Hepatology of the Medical University in Białystok in 2009/2010, based on a survey questionnaire developed for that purpose by the authors.

Results. The majority of respondents declared the following risky behaviour during their travel abroad: eating "local specialities" of unknown origin (88%), drinking ice cold beverages (90%) and brushing teeth using tap water (43%). Stomach-related problems of the surveyed (87%) had already started during their travel. Five of them had taken anti-malaria drugs and reported the following associated ailments: dizziness, nausea, tiredness, hallucinations. Almost all respondents (95%) declared that they had drunk at least 2 litres of water a day. Majority of the surveyed (90%) sunbathed, regardless the time of a day. Cosmetics with UV shield were used by 85% of the surveyed, and all of them (100%) declared wearing hats and sunglasses. First grade sunburn was reported by 45% of the surveyed.

Conclusion. Patients returning home from countries located in different climatic zones reported complaints associated with traveller's diarrhoea, sunburn, and use of anti-malaria chemo-prophylactics. Obtained results may suggest that those patients had no sufficient knowledge with regard to health protection related to travels to countries located in different climatic zones and with low living standards.

Keywords: traveller, diarrhoea, sunburn, malaria.

INTRODUCTION

The mobility of people inter-continentally is common nowadays. Not only tourists but also missionaries and professionals travel to many countries in Africa, Asia, South America and Australia [1,2,3]. It is estimated that over a million Poles travel every year to tropical countries, to work there or for tourism. And this number tends to increase [4]. Therefore, specific medical problems arise, associated with a stay in different climatic and sanitary-epidemiological conditions, which lead to the increased incidence of imported diseases [5]. This fact translates into the necessity of drawing attention to travel, and of more precise nursing diagnoses that could facilitate a final diagnosis not only in doctors' practice, but also in nursing practice.

AIM

The purpose of the study was self-evaluation of the physical health condition of 40 individuals who returned from a country located in a different climatic zone.

MATERIAL AND METHODS

The study was conducted in a group of 40 patients of the Clinic of Tropical Diseases in the Department of Contagious Diseases and Hepatology in Białystok in 2009/2010, based on a survey questionnaire tailored for the purposes of the study.

The study was carried out with the permission R-I-002/114/2010 of the Bioethical Commission of the Medical University in Białystok.

Statistical analysis involved the following methods: arithmetic mean, median, confidence interval, standard deviation, minimum and maximum value (*Min* and *Max*).

RESULTS

Forty individuals, who had returned from countries located in a different climatic zone were evaluated. The majority of the group (65%) were women, most of them aged 31-50 (53%). The surveyed usually lived in a large city (85%), most commonly had higher education (88%). Almost half of the participants (48%) were married. Singles constituted 48% of the group.

The majority of the surveyed (80%) stayed abroad for up to two weeks (Tab. 1). For the majority of them the trip to a different climatic zone was a touristic one (78%) (Fig. 1).

Tab. 1. Duration of respondents' stay abroad

Duration	Count	Percentage
1 week	18	45%
2 weeks	14	35%
3 weeks	2	5%
1 month	2	5%
Several months	2	5%
Many years	2	5%

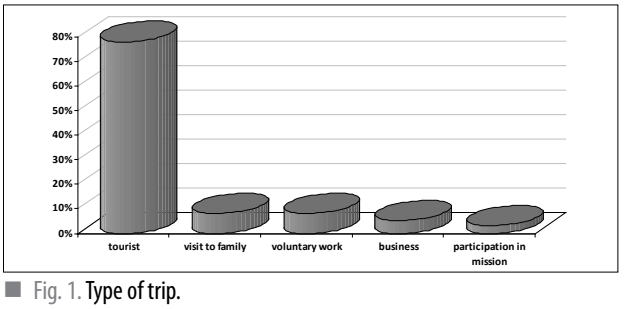

Fig. 1. Type of trip.

The majority of respondents declared the following risky behaviours while being abroad: eating local specialities of unknown origin (88%), drinking beverages with ice (90%), eating shellfish (43%), brushing teeth using tap water (43%). Twenty five percent of respondents were drinking unpasteurised milk, 10% – tap water, 8% and 5% respectively were eating raw meat and eggs (Fig.2). The majority of respondents (83%) were swimming in rivers or pools while being abroad.

The mean duration of diarrhoea was approximately 7 days, and in at least in half of the respondents the duration was not less than 6 days.

For the vast majority of respondents (87%) stomach-related complaints started while they were abroad, and in 10% of them they developed after returning home.

On the other hand, symptoms of diarrhoea appeared in the majority of people (40%) surrounding the patient,

and in almost the same percentage of patients (38%) no such signs appeared, or we had no relevant data (23%).

In virtually all patients (95%) the stool was watery. The mean number of bowel movements per day was over 12, and in almost half of them the number was 11 bowel movements a day.

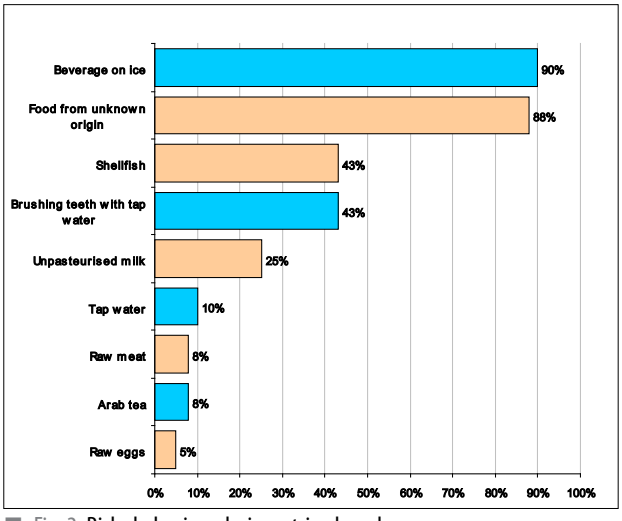

Fig. 2. Risky behaviour during a trip abroad.

There were the following symptoms accompanying the diarrhoea reported by respondents: abdominal pain (98%), weakness (95%), nausea (80%), borborygmus (80%), body weight loss (60%), vomiting (53%), headache (28%), muscular pain (25%).

The majority of respondents (83%) were sleepy and reported reduced volume of urine (55%).

None of the respondents (0%) confirmed taking drugs increasing intestinal peristalsis.

All respondents (100%) confirmed the absence of any coexisting conditions that could suggest higher morbidity of contagious diarrhoea.

Only five individuals (13%) used anti-malaria drugs before travel (Lariam, Malarone and Arechin) (Fig. 3). But four people (80%) reported associated problems, including: dizziness (60%), nausea (40%), tiredness (40%), hallucinations (40%), diarrhoea (20%) (Tab. 2).

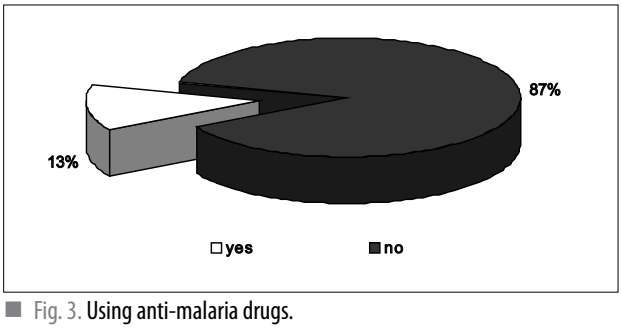

Fig. 3. Using anti-malaria drugs.

One person discontinued anti-malaria drugs, because of the development of signs and symptoms of the disease.

The vast majority of the surveyed used no anti-malaria prevention. Only a couple of them (8%) declared using of anti-mosquito cream or mosquito-curtains (Tab. 3).

Tab. 2. Type of complaints associated with use of anti-malaria drugs

Type of complaints	Count	Percentage[1)]
Dizziness	3	60%
Nausea	2	40%
Tiredness	2	40%
Hallucinations	2	40%
Diarrhoea	1	20%
No complaints	1	20%
Hypersensitivity to light	0	0%
Dermatological allergic reactions	0	0%
Allergic oedema	0	0%

[1)] The sum should not necessarily be 100% as any combination of answers could be given

Tab. 3. Other methods of anti-malaria prophylactics

Other method of anti-malaria prophylactics	Count	Percentage
Mosquito-curtains	2	5%
Anti-mosquito creams	1	3%
No answer	37	93%

Almost all respondents (95%) declared that they had drunk at least 2 litres of water a day.

Majority of the surveyed (90%) were sunbathing, regardless the time of a day. Majority of the respondents (85%) used cosmetics with UV shield (Fig. 4), and all of them (100%) declared wearing hats and sunglasses. First grade sunburn was reported by 45% of the surveyed.

DISCUSSION

Due to progressing warming of the climate (the so-called "greenhouse effect") the epidemiological status of many tropical diseases is currently changing. Tropical diseases appear in new areas, beyond their typical areas of occurrence, e.g. cases of Chikungunya haemorrhagic fever in Northern Italy, and Denga haemorrhagic fever in Turkey [6].Undoubtedly, appropriate knowledge in the area is of utter importance for health care professionals, who are at increased risk of contact with clients/patients travelling to or from tropical countries [7].

It is estimated that over a million Poles travel every year to tropical countries, to work there or for touristic purposes; the number tends to grow. Polish people travel to tropical countries more often and more eagerly [1]. The tempting offers from travel agents, professional contacts and private passions are reasons for thousands of people to travel to Africa and the Middle and Far East [1].

Specific contagious and parasitic diseases occur in tropical countries, unknown in other parts of the world. They are accompanied by diseases occurring presently or until recently in Poland (e.g. cholera, malaria, typhoid fever) [8,9,10]. A tropical climate poses a certain threat for a European. Numerous tropical diseases occurring in native populations for many centuries have an atypical course in newcomers, are commonly severe, and pose a great risk for their health and life [11,12]. There is a clear correlation between the increased incidence of parasitic diseases in hot climates and negligence of basic principles of hygiene and prevention [13]. Basic risk factors affecting morbidity in a hot climate include high temperature and humidity

of air and a low sanitary and hygienic level in the region. Those factors affect both the occurrence of endemic contagious and parasitic diseases, and increase exposure to cosmopolitan contagious and parasitic diseases [14]. Parasitic diseases predominate among tropical diseases, and mortality caused by them is estimated at approximately 2.5 to 3 million cases a year [15].

Forty individuals returning from countries located in different climatic zones were evaluated. The majority of the surveyed were inhabitants of big cities and had higher education. The group was almost equally divided between married and single people.

The majority of the surveyed (80%) stayed abroad for up to weeks and their trip was a touristic one. The above is consistent with literature reports, stating that Polish people more and more often travel to tropical countries for touristic purposes [1,5].

The majority of respondents declared the following risky behaviours during their stay abroad: eating local specialities of unknown origin, drinking beverages with ice, eating shellfish, brushing teeth using tap water. Moreover, the respondents declared the following: drinking unpasteurised milk, tap water, eating raw meat and eggs. The majority of respondents were swimming in rivers or pools. Similar observations regarding risky behaviour were made by Korzeniewski, who carried out his study among soldiers of the Polish Military Contingent in Lebanon [16].

According to Srickland [17], the main pathological symptom associated with the alimentary tract encountered in hot climate zones is persistent diarrhoea (lasting for over 2 weeks), most commonly caused by Giardia lamblia, Entamoeba histolytica, or Trichinella spiralis. For the vast majority of the people surveyed in this study (87%), stomach-related problems begun during their stay abroad, and for 10% of respondents the problems started only after returning home. Korzeniewski's study completed among troops of American soldiers stationed in the Northern-Central Zone in Iraq also demonstrated that the highest incidence level was observed during the first month following their arrival to the region of action in the Middle East [16].

Our studies demonstrated that the mean duration of diarrhoea was approximately seven days, and in at least half of respondents diarrhoea lasted for not less than six days. Korzeniewski's studies completed among military personnel acting in Afghanistan indicated that the majority of pathological symptoms lasted several days, and in 10% of cases they persisted for over two weeks [16].

On the other hand, in the majority of the surveyed participants (40%) diarrhoea occurred also in people from their surroundings. According to Lopez-Velez and Bayas [18], literature data and personal experience justify the statement that diarrhoea and malaria are currently the predominating results of Europeans' travels to tropical countries. Diarrhoea has been long recognised as a result of travel. The condition may be a result of various causes. Some conditions are triggered by emotional causes, an increase in intestinal peristalsis, excessive food intake or food containing exotic spice or fat. Diarrhoea may be also caused by various pathogens [19,20].

Our study demonstrated that in practically all patients (95%) the stool was watery. The mean number of bowel movements per day was slightly over 12, and in half of the patients the number was 11 bowel movements a day.

The results of studies by Korzeniewski conducted among 15,459 members of military personnel of the U.S. Army stationed in 2003-2004 in Iraq and Afghanistan demonstrated also that the most common complaint associated with the alimentary tract was relatively severe diarrhoea (over six loose stools a day) with accompanying fever (26%) and vomiting (18%) [16].

The surveyed respondents reported the following symptoms accompanying diarrhoea: abdominal pain (98%), weakness (95%), nausea (80%), borborygmus (80%), body weight loss (60%), vomiting (53%), headache (28%), muscular pain (25%). Very similar results were obtained by Korzeniewski in his studies completed among soldiers stationing in Iraq [16]. The most commonly reported symptoms were: nausea, vomiting and diarrhoea, lasting for one to three days [16].

Results obtained in this study demonstrated that none of the respondents (100%) confirmed using drugs increasing intestinal peristalsis, and that all surveyed individuals confirmed absence of any coexisting conditions that could suggest a higher incidence of contagious diarrhoea.

Therefore, it is important to remember that appropriate hygienic principles have to be observed in regions with a low sanitary-hygienic standard, as well as that appropriate prevention should be employed [21,22].

The vast majority of those surveyed did not use anti-malaria prevention. Only a couple of them (8%) declared using anti-mosquito cream or mosquito-curtains. Similar results of studies completed among military personnel stationed in Chad and among US Army troops in Afghanistan were obtained by Korzeniewski [16]. The study demonstrated that only 52% of participants used anti-malaria chemoprevention in the region of their activity, 41% used terminal prevention after returning home, 31% used prevention in their region of activity and after returning home, 82% used Permethrin on uniforms and mosquito-curtains, and 29% used repellents on exposed skin (DEET). In other national contingents participating in the ISAF stabilisation mission in Afghanistan, the percentage of people using means of prevention was also very low – 46% used repellents, and 39% used mosquito-curtains [16].

It is in conformity with Chen and Wilson observations [23].

Some soldiers of the Polish Military Contingent serving in Afghanistan until 2005 used chloroquine, which indicates poor epidemiological reconnaissance in the region at that time, associated with common resistance of Plasmodium of malignant malaria to that drug [16]. In 2005, Polish military personnel started using mefloquine (Lariam), which is associated with numerous side effects, including anxiety and depression, psychomotor anxiety, paranoia, anxiety, changing moods, aggression, panic attacks, memory loss, sleep disorders and hallucinations [16]. The symptoms may persist long after discontinuation of mefloquine. In the beginning of 2009, doxycyclinum

was used, which is associated with a statistically higher incidence of side effects. And the medicinal product that should be commonly used for anti-malaria chemoprevention in soldiers of the Polish Military Contingent is atovaquone/proguanil (Malarone), which is associated with the lowest level of adverse effect, compared to mefloquine and doxycyclinum [16]. It is also the best solution in short-term chemoprevention (for several days – weeks) [16,24,25].

Only five people (13%) in this study had taken anti-malaria drugs before their travel (Lariam, Malarone and Arechin) and four of them (80%) reported associated complaints, including: dizziness (60%), nausea (40%), tiredness (40%), hallucinations (40%), diarrhoea (20%). Similarly, among 109 soldiers stationed in Chad, taking oral anti-malaria chemoprevention, eight complained of headaches, abdominal pain and diarrhoea [16].

One person in this study discontinued anti-malaria drugs, because of the development of the disease symptoms.

Travelling to tropical countries should be carefully considered and planned, and prophylactic recommendations should include valuable information about the particular region and environment, the climatic conditions and weather during a given season of the year, the character and length of a stay (hotel, bungalow, tent, access to fresh water, etc.), the age of a traveller, his/her coexisting conditions and possible local risk factors, which are often difficult to foresee. It is necessary to have appropriate clothes and shoes protecting against heat or cold, and against a bite or sting by dangerous insects (particularly mosquitoes), hemiptera, arachnids or higher animals [26,27]. It has to be considered that an European's organism operates in the equatorial climate at its top capacity [20]. Particularly those individuals who easily overheat and have insufficient respiration, for example obese ones, feel bad. One cannot forget about supplementing liquids. Minimum 2-3 litres of water should be drunk daily, and the quantity should be increased to 5 litres in case of playing sports [20]. In this study, majority of the respondents (95%) declared drinking at least 2 litres of water a day. To avoid sun shock it is advisable to visit beaches only after 3 p.m., or even after 4 p.m. Using protective creams with factor over 20 is also necessary [28]. The study demonstrated however, that as many as 90% of the surveyed were sunbathing regardless the time of a day, and for a whole day. Cosmetics with UV shield were used by the majority (85%) of the surveyed (Fig. 4), and all of them (100%) declared wearing hats and sunglasses. The study demonstrated development of a first grade sunburn in as many as 45% of the surveyed.

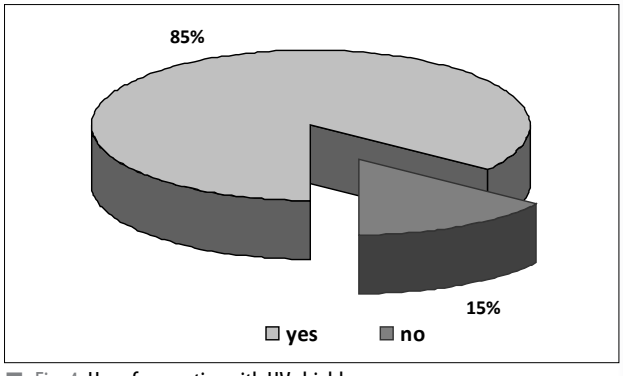

Fig. 4. Use of cosmetics with UV shield.

Unfortunately, decisions on travel to distant countries are often made impulsively, guided by advertisements, "last minute" offers, and usually without appropriate medical preparation or knowledge of local health-related threats. Decisions of that kind are made by elderly people, patients with chronic respiratory or circulatory conditions, pregnant women, and parents with young children [29]. Apart from inconveniences and the health-related risk associated with a long journey, trips to many countries are also associated with an increased risk of contagious and tropical diseases, and with excessive exposure to sun rays [28,12].

CONCLUSIONS

Patients returning home from countries located in different climatic zones reported complaints associated with traveller's diarrhoea, sunburn, and use of anti-malaria chemo-prophylactics. The obtained results may suggest that those patients had no sufficient knowledge with regard to health protection related to travels to countries located in different climatic zones and with low living standards.

POSTULATES

Continuation of the study on a bigger group of participants is recommended.

WYKAZ SKRÓTÓW

UMB : Uniwersytet Medyczny w Białymstoku
UV : Ultrafiolet
DEET: *N,N*-Dietylo-*m*-toluamid, związek chemiczny, pośrednio środek owadobójczy i sprawdzony naukowo jako odstraszający owady
Min: charakterystyka liczbowa badanych parametrów – wartość najmniejsza (minimum)
Max: charakterystyka liczbowa badanych parametrów – wartość największa (maksimum)

REFERENCES

1. Kacprzak E. Zagrożenia związane z podróżami do krajów tropikalnych. Kosmos. 2005; 54: 115-122.
2. Barnett ED, Wilder-Smith A, Wilson ME. Yellow fever vaccines and international travelers. Expert Rev Vaccines. 2008; 7: 579-587.
3. Juckett G. Travel medicine 2005. W V Med J. 2004; 100: 222-225.
4. Łysoń S. W kierunku zapewnienia globalnego bezpieczeństwa zdrowotnego – 60. Światowe Zgromadzenie Zdrowia. Zdr Publ. 2007; 117: 495-500.
5. Field V, Gautret P, Schlagenhauf P et al. Travel and migration associated infectious diseases morbidity in Europe, 2008. BMC Infect Dis. 2010; 17: 330.
6. Simon K. Wczesne wykrywanie i leczenie oraz profilaktyka chorób tropikalnych. Przew Lek. 2008; 1: 250-254.
7. Powell B, Ford C. Risks of travel, benefits of a specialist consult. Cleve Clin J Med. 2010; 77: 246-254.
8. Pawłowski Z. Zasady profilaktyki przy wyjeździe do strefy tropikalnej. [w:] Dziubak Z, red. Choroby zakaźne i pasożytnicze. Warszawa: PZWL; 2003.s. 523-7.
9. Colebunders R, Lynen L, Van den Enden E. Tropische Ziektenleer. Antwerpen: Instituut voor Tropische Geneeskunde; 2004.
10. Hay SI, Guerra CA, Tatem AJ et al. The global distribution and population at risk of malaria: past, present, and future. Lancet Infect Dis. 2004; 4: 327-36.
11. Olszański R, Morawiec B, Dąbrowiecki Z et al. Zarys Medycyny Tropikalnej. Gdynia: ZMMiT WIM; 2006.
12. Castelli F, Capone S, Pedruzzi B et al. Antimicrobial prevention and therapy for travelers' infection. Expert Rev Anti Infect Ther. 2007; 5: 1031-48.
13. Dęga K, Kierznikowicz B. Zjawiska epidemiczne w warunkach misji specjalnych organizacji międzynarodowych. [w:] Chomiczewski K, Gall W, Grzybowski J. red. Epidemiologia działań wojennych i katastrof. Bielsko-Biała: Alfa-medica Press; 2001.s. 121-34.
14. Buczyński A, Kocur J, Kierżnikowicz B. Ochrona sanitarno-higieniczna i psychiczna żołnierzy misji pokojowych ONZ. [w:] Kierżnikowicz B, Knap J. red. Służba zdrowia Wojska Polskiego w misjach pokojowych. Warszawa: Eurostar; 2001.s. 95-112.
15. Golińska Z. Ważniejsze pasożytnicze choroby tropikalne. Lek Woj. 1999; 75: 425-30.
16. Korzeniewski K. Współczesne operacje wojskowe. Zagrożenia zdrowotne w odmiennych warunkach klimatycznych i sanitarnych. Warszawa: WIM Wydawnictwo Akademickie Dialog; 2009.
17. Strickland GT. Hunter's Tropical Medicine. Philadelphia: Saunders; 1991.
18. Lopez-Velez R, Bayas JM. Spanish travelers to high-risk areas in the tropics: airport survey of travel health knowledge, attitudes, and practices in vaccination and malaria prevention. J Travel Med. 2007; 14: 297-305.
19. Steffen R, Kollaritsch H, Fleischer K. Travelers' Diarrhea in the New Millennium: Consensus among Experts from German-speaking Countries. J Travel Med. 2003; 10: 38-45.
20. Rack J, Wichmann O, Kamara B et al. Risk and Spectrum of Diseases in Travelers to Popular Tourist Destinations. J Travel Med. 2005; 12: 248–253.
21. Van Damme-Ostapowicz K. Bezpieczna podróż w tropik. [w:] Olszański R. red. Problemy zdrowotne w tropiku. Warszawa: ZMMiT WIM; 2009.s. 19-24.
22. Duval B, De Serre G, Shadmani R et al. A Population-based Comparison between Travelers Who Consulted Travel Clinics and Those Who Did Not. J Travel Med. 2003; 10: 4–10.
23. 23. Chen LH, Wilson ME. Recent Advances and New Challenges in Travel Medicine. Curr Infect Dis Rep. 2002; 4: 50-58.
24. Danis M, Bricaire F. The new drug combinations: their place in the treatment of uncomplicated Plasmodium falciparum malaria. Fund & Clinical Pharmacol. 2003; 17: 155–160.
25. Dupouy-Camet J, Yera JH, Tourte-Schaeffer C. Problems in prescribing malaria chemoprophylaxis for travelers. Fund & Clinical Pharmacol. 2003; 17: 161–169.
26. Hill DR. Health problems in a large cohort of Americans traveling to developing countries. J Travel Med. 2000; 7: 259-266.
27. Christenson JC. Preparing families with children traveling to developing countries. Pediatr Ann. 2008; 37: 806-813.
28. Keeney S, McKenna H, Fleming P et all. Attitudes, knowledge and behaviours with regard to skin cancer: A literature review. Eur J Oncol Nurs. 2009; 13: 29-35.
29. Stauffer W, Christenson JC, Fischer PR. Preparing children for international travel. Travel Med Infect Dis. 2008; 6: 101-113.

Praca przyjęta do druku: 8.12.2012
Praca zaakceptowana do druku: 30.01.2012