■ ♣Sat-419 ■

Korean travelers' knowledge, attitude and practices on prevention of imported infectious diseases

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Background/Aims: Korean travelers going abroad are increasing every year. Imported infectious diseases also have increased because of migration of people, global warming and urbanization. **Methods:** Two questionnaires originally developed by European Travel Health Advisor Board for survey of knowledge, attitude and practice of pre-travel vaccination and malaria chemoprophylaxis were modified and translated into Korean with permission before use. Questionnaires were distributed to total 1,641 travelers from August to November in 2015, in three different travel clinics, quarantine offices, and the Incheon International Airport. **Results:** Of 1641 travelers, male was 874(53.2%) and female was 767(46.8%). Mean age was 39.4 years old. Destination of respondents was diverse, including about 60 countries. The purpose of travel was mostly tourism (50.5%), business (26.6%) and volunteer/missionary (12.5%). Duration of travel was within 7days for 48.3%, 8 to 14 days for 22.3%, and more than 29 days for 20.6%. Characteristics of travelers going to countries with high-to-middle risk of acquiring malaria were compared with travelers going to low malaria risk countries. They were predominantly male (348, 67.9%), tourist (246, 43.8%) traveling for longer duration and seek more pre-travel health advice (459, 81.7%) compared to malaria low risk group. Among travelers going to high malaria risk areas, shorter duration of trip (OR 2.84, p<0.001) and volunteers or missionary workers (OR 0.11, p<0.001) were significant factors for not seeking pre-travel health advice before departure. Travelers going to malaria high risk area used mosquito repellent only 27.2%, chemoprophylaxis 21.7%. Many travelers decided not to take malaria chemoprophylaxis because they don't like taking any kind of medicine (30.3%), doubts about efficacy of drugs (10.2%) and high cost of prophylactic drugs (8.0%). **Conclusions:** Health information seeking behavior and health risk assessment by most Korean traveler are still in many ways inappropriate. Providing recommended vaccines and chemoprophylaxis with exact health information for travelers by travel medicine experts is needed.

Table 1. Preparing duration before travel based on purpose of trip

Purpose	Preparing duration (days)								
	1~7	(%)	8~14	(%)	15~28	(%)	>29	(%)	Total
Business	165	43.3	100	38.0	78	29.2	74	10.9	417
Tourism	165	43.3	125	47.5	141	52.8	380	55.8	811
Volunteer/Missionary	13	3.4	20	7.6	31	11.6	141	20.7	205
Education	15	3.9	10	3.8	8	3.0	15	2.2	48
Friends/Relatives	13	3.4	3	1.1	9	3.4	21	3.1	46
Sports	8	2.1	2	0.8	1	0.4	13	1.9	24
Others	7	1.8	5	1.9	5	1.9	43	6.3	60
Total	386		265		273		687		1611

Table 2. Source of getting travelers' health information (allowing multiple answers)

Number of travelers getting information before trip (allowing multiple answers)	Male	Female	Total
	600 (53.7%)	517 (46.3%)	1117
Source			
Internet	473	413	951 (85.1%)
Friends/Relatives/Natives	175	143	233 (20.9%)
Call service (quarantines etc.)	26	30	22 (2.0%)
Cellphone applications	26	36	42 (3.8%)
Traveling books/Journals	70	82	102 (9.1%)

Table 5. Malaria chemoprophylactic drugs prepared by malaria-high risk travelers

Chemopropohylactic drugs	Low risk area (n=280)	High risk area (n=240)
Malarone (Atovaquone/proguanil)	38(13.6%)	58(24.2%)
Lariam (mefloquine)	23(8.2%)	33(13.8%)
Chloroquine	19(6.8%)	4(1.7%)
Doxycycline	23(8.2%)	9(3.7%)
Do not know what kind of drugs were prescribed	177(63.2%)	136(56.7%)

■ ♣Sat-420 ■

Comparison of characteristic between pneumococcal meningitis and pneumococcal bacteremic pneumonia

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Background/Aims: Pneumococcal meningitis (PM) is one of invasive pneumococcal disease (IPD) and is considered as a medical emergency with notable morbidity and mortality. This study was designed to characterize differences in clinical characteristics and outcomes , pneumococcal serotypes, and antimicrobial susceptibilities between PM and pneumococcal bacteremic pneumonia (PBP) in adult patients in the Republic of Korea (ROK) from a prospective observational cohort. **Methods:** Adult IPD cases (≥ 18 years) were prospectively collected from 20 hospitals participated in the pneumococcal surveillance program in the ROK from 2013 through 2015. Serotyping and antimicrobial susceptibility testing were performed by a multiplexed serotyping assay and Microscan system, respectively. **Results:** During the study period, 30 cases of PM and 205 cases of PBP were compared. Serotypes 19A, 15B/15C, and 35B were the most prevalent among PM cases, whereas serotypes 3, 11A/D/F, and 19A were the most common serotypes in PBP. There were significant female predominance (46.7% vs 2.3%, p=0.022), younger age (56.7% vs 36.1%, p=0.031), less immunocompromised states (3.3% vs 28.8%, p=0.005), less underlying chronic lung diseases (3.3% vs 16.6%, p=0.04), and lower mortality rate (16.7% vs 44.4%, p=0.004) in PM, compared to PBP. However, PM cases showed higher penicillin resistance (76.7% vs 19.2%, p <0.001), and ceftriaxone resistance (53.3% vs 13.4%, p <0.001), consistent with higher MDR prevalence in PM cases (76.7% vs 53.2 P=0.016). All PM cases except for 3 cases received empiric or definite vancomycin treatment. Multiple logistic regression analysis showed that penicillin resistance (odds ratio [OR] 15.75, 95% confidence interval (CI) 3.82-64.72, p<0.001) and survival (OR 20.73, 95% CI 3.1-136.74, p=0.002) were significantly associated with PM. **Conclusions:** This study indicates that adult PM showed favorable clinical outcomes, compared to PBP, despite of differences in clinical characteristics.

		Bacteremic Pneumonia N= 205	Meningitis N=30	P
Male, n (%)		151 (73.7)	16 (53.3)	0.022
Female, n (%)		54 (2.3)	14 (46.7)	
Age				0.031
>= 65 years, n (%)		131 (63.9)	13 (43.3)	
age	Mean	68.2 ±13.0	62 ± 13.8	0.019
	median	70 (IQR 58-78)	62 (IQR 54-72)	
Immune compromised	IC w Chronic	22 (10.7)	0 (0.0)	0.087
	IC wo Chronic	33 (16.1)	1 (3.3)	0.091
	IC w/wo C	55 (28.8)	1 (3.3)	0.005
Underlying disease				
만성심장질환		24(11.7)	1(3.3)	0.138
만성폐질환		34(16.6)	1(3.3)	0.04
만성간질환		18(8.8)	1(3.3)	0.27
만성신부전		11(5.4)	0(0.0)	0.215
만성신경질환		28(13.7)	2(6.7)	0.225
CSF 누출		0(0.0)	1(3.3)	0.128
당뇨병		41(20.0)	4(13.3)	0.386
요양기관거주		48(23.4)	3(10.0)	0.096
흡연		11(5.4)	0(0.0)	0.531
알코올 중독		11(5.4)	0(0.0)	0.215
발병 전 예방접종				
PPV 23		45(22.0)	6(20.0)	1
PCV 13		1(0.5)	0(0.0)	
Both PPV23 PCV13		0(0.0)	1(3.3)	

		Bacteremic Pneumonia N= 205	Meningitis N=30	P
Serotype				
	Serotype available	121	19	
	Nonvaccine	31	7	0.306
	Ppv23	90	12	0.687
	Pcv13	52	5	0.299
PCV 13 or PPV23 covered serotypes		90(74.4)	12(63.2)	0.306
Susceptibility				
	Penicillin SUS	164(80.8)	7(23.3)	0
	Ceftriaxone SUS	161(86.6)	14(46.7)	0
	Vancomycin SUS	202(100)	30(100)	NA
	Levofloxacin SUS	195(95.1)	29(96.7)	0.578
	Meropenem SUS	57(45.6)	6(26.1)	0.082
	Clindamycin SUS	94(47.2)	10(33.3)	0.154
	TMP-SUX SUS	112(59.6)	11(42.3)	0.095
	Erythromycin SUS	56(27.3)	4(13.3)	0.101
MDR streptopneumococcus		108(53.2)	23(76.7)	0.016
PBS score				
Mean		3.2 ± 2.6	2.3 ± 1.4	0.902
Median		2 (IQR 0-5)	2 (IQR 1.00 – 3.75)	
PITT bacteremia score >=4		83(40.5)	6(25.0)	0.141
Initial discordant tx.		17(9.7)	4(17.4)	0.277
Mortality		91(44.4)	5(16.7)	0.004
입원기간				
Mean		9.5 ± 20.8	32 ± 27.4	0.902
Median		3 (IQR 1-11)	23 (IQR 10.5 -58)	