

Prevalence of Takayasu's arteritis in Korea

Sirs,

Takayasu's arteritis (TAK) is a chronic inflammatory vascular disease of unknown origin. It is also known as aortic arch syndrome, nonspecific aortoarteritis, inter-arm blood pressure difference, and pulseless disease. It mainly affects the aorta and its branches, as well as the coronary or pulmonary arteries. Many patients are young Asian women between 15 and 30 years of age. The disease has a 8-9-fold higher prevalence in female patients than in males (1). However, few studies have evaluated the prevalence of TAK in Korea, where it is a rare disease. Therefore, in this paper, we describe the prevalence of TAK in Korea between 2006 and 2013.

Data were collected from the Korean National Health Insurance (KNHI) Benefit records from 2006 through 2013. A main diagnosis was extracted from the records of the KNHI Benefit system after the data described primary diagnosis depending on the complaints and symptoms without the diagnosis being confirmed during the period of treatment at various medical institutes. Data consisted of primary diagnoses related to TAK (M31.4 aortic arch syndrome) diagnosed according to the 10th revision of the International Statistical Classification of Diseases and Related Health Problems.

The age-standardised prevalence of TAK was calculated with the direct method using the beneficiaries of Health Insurance from KNHI Statistical Yearbook from 2006 through 2013 and the estimated Korean population in 2010 as a reference.

Overall, the age-standardised prevalence of TAK was 1.54 per 100,000 persons in 2006 and 2.89 in 2013. For females, the age-standardised prevalence per 100,000 persons was 2.58 in 2006 and 5.06 in 2013 (Table I). Few studies have reported on the age-standardised prevalence of TAK overall and by sex. Therefore, our results cannot be directly compared against other geographic and ethnic groups. Nevertheless, the results of the present study are similar to those of earlier studies. The prevalence of TAK was 7.1 persons per million individuals in Norwich, United Kingdom (UK) and 4.7 persons per million individuals in the UK General Practice Research Database (2), 40 patients per million patients (3) and 7.85 persons per 100,000 patients in Japan (4), 7.8-9.5 persons per million individuals in Kuwait (5), and 6.4 persons per million individuals in Sweden (6).

This study showed that the prevalence of TAK varied by gender. In 2013, the age-standardised prevalence of TAK in females was about 5 persons per 100,000 persons, while the prevalence of TAK in male was about 1 person. These results correspond well with those of previous studies. The prevalence of TAK was higher in women

than that in men in southern Sweden (7) and in Turkey (8).

The overall age-standardised prevalence of TAK showed higher prevalence in those between 45-64 years of age. The prevalence in those between 45-64 years of age in our study cannot be compared to the prevalence in other studies.

Our study had several limitations. First, the data only included TAK. We determined the primary diagnosis based on the sign and/or symptoms, which may differ from the final diagnosis. We also think that patients with giant cell arteritis may have been misclassified as TAK. For these reasons, the prevalence of TAK in this study might be under- or over-estimated. Second, KNHI benefit records may have missed some potential patients with TAK who did not use medical services, paid for their own medical expenses, or received Medical Aid. Third, we could not show vascular involvement from TAK due to limitation in the data. Therefore, because of the trend toward an increased prevalence of TAK, a well-designed hospital-based TA registry is needed in Korea (9).

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Table I. Age-standardised prevalence^a and 95% confidence interval (CI) of Takayasu's arteritis overall and by gender (per 100,000).

Variables	2006		2007		2008		2009	
	n	Prevalence (95% CI)	n	Prevalence (95% CI)	n	Prevalence (95% CI)	n	Prevalence (95% CI)
All	722	1.54 (1.43, 1.65)	850	1.78 (1.66, 1.90)	896	1.85 (1.72, 1.97)	978	1.98 (1.85, 2.10)
0-4 years old	4	0.13 (0.00, 0.31)	2	0.04 (0.00, 0.16)	2	0.04 (0.00, 0.16)	3	0.09 (0.00, 0.24)
5-9 years old	1	0.03 (0.00, 0.06)	1	0.00 (0.00, 0.06)	3	0.08 (0.00, 0.21)	4	0.12 (0.00, 0.27)
10-14 years old	6	0.15 (0.01, 0.30)	9	0.25 (0.07, 0.43)	6	0.15 (0.01, 0.30)	6	0.15 (0.01, 0.30)
15-19 years old	17	0.55 (0.28, 0.81)	17	0.52 (0.26, 0.78)	20	0.61 (0.33, 0.88)	20	0.58 (0.31, 0.84)
20-44 years old	315	1.54 (1.37, 1.72)	364	1.80 (1.62, 1.99)	368	1.84 (1.65, 2.02)	382	1.92 (1.73, 2.12)
45-64 years old	316	2.76 (2.45, 3.06)	370	3.12 (2.80, 3.43)	410	3.34 (3.02, 3.67)	463	3.64 (3.31, 3.97)
Over 65 years	63	1.53 (1.14, 1.91)	87	1.97 (1.55, 2.38)	87	1.88 (1.48, 2.27)	100	2.06 (1.65, 2.47)
Women	595	2.58 (2.37, 2.78)	720	3.08 (2.85, 3.31)	756	3.18 (2.95, 3.41)	819	3.38 (3.15, 3.62)
0-4 years old	2	0.18 (0.00, 0.44)	1	0.09 (0.00, 0.18)	0	0.00 (0.00, 0.00)	2	0.92 (0.00, 0.34)
5-9 years old	0	0.00 (0.00, 0.00)	0	0.00 (0.00, 0.00)	1	0.08 (0.00, 0.15)	2	0.08 (0.00, 0.31)
10-14 years old	2	0.06 (0.00, 0.24)	4	0.19 (0.00, 0.45)	2	0.06 (0.00, 0.24)	4	0.26 (0.01, 0.52)
15-19 years old	12	0.80 (0.33, 1.28)	11	0.74 (0.30, 1.18)	14	0.93 (0.44, 1.41)	11	0.68 (0.26, 1.10)
20-44 years old	268	2.71 (2.39, 3.04)	310	3.16 (2.81, 3.52)	313	3.22 (2.86, 3.57)	327	3.39 (3.02, 3.76)
45-64 years old	265	4.62 (4.06, 5.17)	322	5.44 (4.84, 6.03)	355	5.81 (5.20, 6.41)	397	6.27 (5.65, 6.89)
Over 65 years	46	1.89 (1.33, 2.44)	72	2.78 (2.14, 3.43)	71	2.63 (2.01, 3.24)	76	2.69 (2.08, 3.30)
Men	127	0.53 (0.44, 0.63)	130	0.53 (0.43, 0.62)	140	0.56 (0.46, 0.65)	159	0.63 (0.53, 0.73)
0-4 years old	2	0.08 (0.00, 0.32)	1	0.09 (0.00, 0.16)	2	0.08 (0.00, 0.32)	1	0.15 (0.00, 0.17)
5-9 years old	1	0.06 (0.00, 0.12)	1	0.00 (0.00, 0.13)	2	0.08 (0.00, 0.27)	2	0.08 (0.00, 0.28)
10-14 years old	4	0.18 (0.00, 0.40)	5	0.24 (0.00, 0.49)	4	0.18 (0.00, 0.41)	2	0.06 (0.00, 0.22)
15-19 years old	5	0.27 (0.00, 0.54)	6	0.32 (0.03, 0.61)	6	0.32 (0.04, 0.60)	9	0.49 (0.15, 0.82)
20-44 years old	47	0.44 (0.31, 0.57)	54	0.51 (0.38, 0.65)	55	0.53 (0.38, 0.67)	55	0.53 (0.38, 0.67)
45-64 years old	51	0.88 (0.63, 1.12)	48	0.80 (0.57, 1.03)	55	0.88 (0.64, 1.11)	66	1.02 (0.77, 1.27)
Over 65 years	17	1.00 (0.51, 1.48)	15	0.81 (0.40, 1.23)	16	0.81 (0.40, 1.22)	24	1.18 (0.70, 1.66)

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Cont. Table 1.

Variables	2010		2011		2012		2013	
	n	Prevalence (95% CI)	n	Prevalence (95% CI)	n	Prevalence (95% CI)	n	Prevalence (95% CI)
All	1,053	2.10 (1.97, 2.22)	1,195	2.34 (2.21, 2.47)	1,267	2.44 (2.30, 2.57)	1,532	2.89 (2.74, 3.03)
0-4 years old	1	0.04 (0.00, 0.08)	5	0.18 (0.00, 0.37)	1	0.00 (0.00, 0.08)	1	0.04 (0.00, 0.08)
5-9 years old	3	0.12 (0.00, 0.26)	3	0.12 (0.00, 0.26)	2	0.08 (0.00, 0.19)	0	0.00 (0.00, 0.00)
10-14 years old	7	0.22 (0.05, 0.38)	7	0.22 (0.05, 0.38)	4	0.12 (0.01, 0.25)	8	0.25 (0.07, 0.42)
15-19 years old	20	0.58 (0.32, 0.84)	20	0.58 (0.32, 0.84)	20	0.58 (0.32, 0.84)	22	0.63 (0.36, 0.91)
20-44 years old	398	2.02 (1.82, 2.22)	421	2.14 (1.93, 2.34)	433	2.20 (1.99, 2.41)	508	2.58 (2.36, 2.81)
45-64 years old	507	3.84 (3.51, 4.18)	580	4.39 (4.04, 4.75)	626	4.75 (4.37, 5.12)	792	6.01 (5.59, 6.43)
Over 65 years	117	2.34 (1.91, 2.76)	159	3.18 (2.69, 3.68)	181	3.63 (3.10, 4.16)	201	4.03 (3.47, 4.59)
Women	897	3.65 (3.41, 3.89)	1,016	4.07 (3.82, 4.32)	1,075	4.23 (3.98, 4.48)	1,311	5.06 (4.78, 5.33)
0-4 years old	1	0.09 (0.00, 0.17)	3	0.18 (0.00, 0.49)	0	0.00 (0.00, 0.00)	0	0.00 (0.00, 0.00)
5-9 years old	1	0.08 (0.00, 0.25)	1	0.08 (0.00, 0.26)	1	0.08 (0.00, 0.26)	0	0.00 (0.00, 0.00)
10-14 years old	4	0.26 (0.00, 0.52)	4	0.26 (0.00, 0.53)	1	0.65 (0.00, 0.21)	2	0.13 (0.00, 0.34)
15-19 years old	10	0.62 (0.22, 1.01)	13	0.80 (0.35, 1.25)	14	0.86 (0.39, 1.33)	18	1.11 (0.57, 1.65)
20-44 years old	340	3.57 (3.19, 3.95)	360	3.79 (3.40, 4.18)	366	3.88 (3.48, 4.28)	429	4.60 (4.17, 5.04)
45-64 years old	446	6.78 (6.15, 7.41)	509	7.51 (6.85, 8.16)	550	7.88 (7.22, 8.54)	697	9.67 (8.95, 10.3)
Over 65 years	95	3.25 (2.59, 3.91)	126	4.18 (3.45, 4.91)	143	4.52 (3.78, 5.26)	165	4.98 (4.22, 5.75)
Men	156	0.61 (0.51, 0.70)	179	0.68 (0.58, 0.79)	1921	0.72 (0.62, 0.82)	221	0.81 (0.71, 0.92)
0-4 years old	0	0.00 (0.00, 0.00)	2	0.08 (0.00, 0.32)	1	0.00 (0.00, 0.16)	1	0.09 (0.00, 0.16)
5-9 years old	2	0.08 (0.00, 0.30)	2	0.16 (0.00, 0.39)	1	0.08 (0.00, 0.24)	0	0.00 (0.00, 0.00)
10-14 years old	3	0.18 (0.00, 0.38)	3	0.18 (0.00, 0.39)	3	0.18 (0.00, 0.40)	6	0.42 (0.08, 0.76)
15-19 years old	10	0.54 (0.20, 0.89)	7	0.38 (0.09, 0.67)	6	0.32 (0.05, 0.60)	4	0.21 (0.00, 0.44)
20-44 years old	58	0.57 (0.42, 0.72)	61	0.60 (0.45, 0.75)	67	0.65 (0.49, 0.81)	79	0.78 (0.61, 0.95)
45-64 years old	61	0.91 (0.68, 1.14)	71	1.02 (0.78, 1.26)	76	1.07 (0.82, 1.31)	95	1.30 (1.04, 1.57)
Over 65 years	22	1.04 (0.60, 1.48)	33	1.50 (0.98, 2.01)	38	1.63 (1.11, 2.16)	36	1.45 (0.97, 1.93)

a Age-standardised prevalence rates of Takayasu's arteritis were calculated by age group according to the direct method using the estimated 2010 Korean population as a reference.

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