

## Trend in the incidence of Rheumatoid Arthritis in Korea for 11-years (2006-2017)

경상국립대병원 내과<sup>1</sup>, 경상국립대병원 류마티스내과<sup>2</sup>, 창원경상국립대병원 류마티스내과<sup>3</sup>, 경상국립대병원 권역심뇌혈관질환센터<sup>4</sup>

강현지<sup>1</sup>, 김록범<sup>4</sup>, 이한나<sup>3</sup>, 서영선<sup>3</sup>, 김민교<sup>2</sup>, 김현옥<sup>3</sup>, 이상일<sup>2</sup>, \*천윤홍<sup>2</sup>

**Background:** Rheumatoid arthritis (RA) is a chronic inflammatory autoimmune disease, characterized by joint damage. It occurs in approximately 0.3-1.0% of the worldwide population, with an annual incidence rate of 10-20 per 100,000 individuals. However, no incidence analyses have been conducted on Koreans beyond the year 2013. Therefore, this study aimed to calculate the incidence of rheumatoid arthritis and examine its trends using whole Korean NHIS claims data from 2007 to 2017.

**Methods:** We used 16 years of Korean NHIS claims data from 01 January 2002 to 31 December 2017. Data from 2002 to 2006 (5years) were used as a washout period to define newly diagnosed RA patients. Patients were defined diagnostic RA who were diagnosed with ICD-10 code (M05 and M06). Those who had only diagnostic code without prescribed RA drugs (DMARDs) were excluded from the prevalent RA patients. we set the 5-year period prior to 2006 as a disease-free period.

**Results:** From 2007 to 2017, the incidence rate of RA was 35 to 43 per 100,000 individuals (Figure 1(a)). The female-to-male ratio was approximately 3 to 3.5 (Figure 1(b)). Notably, the sex-standardized incidence rate was highest in the 60-69 age group, but it gradually declined, resulting in a reversal in 2017, with the highest incidence rate observed in the 50-59 age group (50-59 age group of 78.7/100,000, 60-69 age group of 76.8/100,000) (Figure 1(c)). Moreover, the incidence of elderly-onset RA (EORA) in individuals aged over 60 exhibited a decreasing trend during the study period (60-69 age group of -6.45, 95% CI=-8.27 to -4.62,  $p<0.001$ ,  $\geq 70$  age group of -6.09, 95% CI=-7.66 to -4.53,  $p<0.001$ ) (Table 1).

**Conclusions:** This study is the first to analyze the incidence trend RA over an 11-year period. There were notable changes in age-specific incidence rates. The incidence rate in the 60-69 age group gradually decreased, resulting in the highest incidence rate observed in the 50-59 age group in 2017. Additionally, there was a decreasing trend in the incidence of elderly-onset RA (EORA).

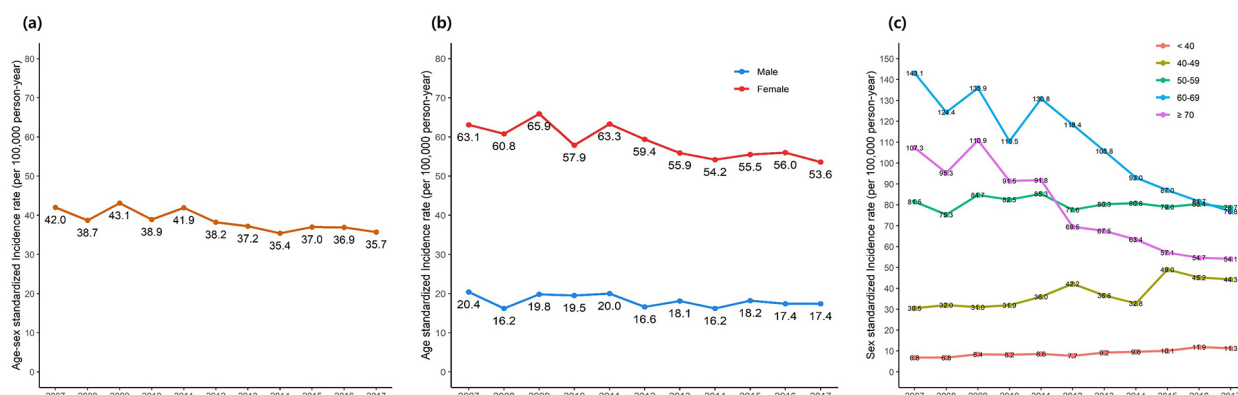


Figure 1. Trends of RA incidence during 11 years. (a) age-sex standardized incidence rate. (b) Age standardized incidence rate. (c) Sex standardized incidence rate.

Table 1. The linear trend of adjusted incidence rate during 11 years.

	Estimated efficient of changed incidence during 1 years	95% CI of estimated efficient	p-value
Total	-0.62	-0.99 to -0.26	0.004
Gender			
Male	-0.21	-0.53 to 0.10	0.157
Female	-1.02	-1.55 to -0.49	0.002
Age-group			
< 40	0.47	0.33 to 0.61	<0.001
40-49	1.62	0.74 to 2.50	0.002
50-59	-0.17	-0.83 to 0.48	0.564
60-69	-6.45	-8.27 to -4.62	<0.001
≥ 70	-6.09	-7.66 to -4.53	<0.001