

Supplementary Table 1. Definitions of pregnancy episodes and pregnancy outcomes

Outcome		Category	Codes
<i>Used for the definition of pregnancy episodes and outcomes</i>			
Delivery		Procedure code	R313, R314, R435, R436, R438, R450, R451, R4520, R4522, R500, RA31, RA36, RA38, RA43
APO	Abortion	Diagnostic code	O01~08
	Stillbirth	Diagnostic code	Z37.1, Z37.3, Z37.4, Z37.6, Z37.7, O36.4
<i>Used for the definition of pregnancy episodes only</i>			
Pregnancy confirmation		Diagnostic code	Z32.1, Z33, Z34, Z35
Abortion		Procedure code	R4441, R4442, R4452, R4453, R4456, R4457, R4458, R4459

APO, Adverse pregnancy outcome.

Supplementary Table 2. Additional baseline characteristics of the study population at the date of conception

Variables	All pregnancies (n = 5,728)	Delivery (n = 4,576)	APO (n = 1,152)	P
Age group, years				< 0.001
20~29	857 (15.0%)	743 (16.2%)	114 (9.9%)	
30~39	4,375 (76.4%)	3,585 (78.3%)	790 (68.6%)	
40~49	496 (8.7%)	248 (5.4%)	248 (21.5%)	
Year of pregnancy				0.159
2011	414 (7.2)	344 (7.5)	70 (6.1)	
2012	460 (8.0)	366 (8.0)	94 (8.2)	
2013	642 (11.2)	524 (11.5)	118 (10.2)	
2014	709 (12.4)	560 (12.2)	149 (12.9)	
2015	755 (13.2)	625 (13.7)	130 (11.3)	
2016	700 (12.2)	551 (12.0)	149 (12.9)	
2017	693 (12.1)	547 (12.0)	146 (12.7)	
2018	690 (12.0)	542 (11.8)	148 (12.8)	
2019	665 (11.6)	517 (11.3)	148 (12.8)	
Region				0.275
Seoul	1,065 (18.6)	849 (18.6)	216 (18.8)	
Metropolitan city	1,278 (22.3)	1,041 (22.7)	237 (20.6)	
Others	3,385 (59.1)	2,686 (58.7)	699 (60.7)	

Data are presented as numbers with percentages (%) or mean \pm standard deviations.

APO, Adverse pregnancy outcome; RA, Rheumatoid arthritis; CCI, Charlson comorbidity index.

Supplementary Table 3. Factors associated with APOs versus delivery in patients with RA (only including first pregnancies)

Variables	Multivariable analysis (n = 3,037)	
	Adjusted OR (95% CI)	P
Age group, years (ref: 20~29)		
30~39	1.25 (0.96–1.64)	0.100
40~49	5.42 (3.91–7.52)	< 0.001
Type of insurance (ref: NHI)	1.15 (0.51–2.59)	0.732
Type of institution (ref: tertiary referral hospital)		
General hospital	0.82 (0.62–1.07)	0.142
Community hospital/clinic	1.41 (1.12–1.78)	0.003
Income group (ref: 1 st quartile)		
2 nd quartile	0.74 (0.55–1.00)	0.047
3 rd quartile	0.91 (0.70–1.19)	0.486
4 th quartile	0.74 (0.55–1.00)	0.052
Seropositivity (ref: seronegative)	0.93 (0.74–1.17)	0.527
CCI score	1.08 (0.98–1.19)	0.134
Any hospital visit for RA during early pregnancy ^a	0.92 (0.70–1.22)	0.559
Conventional synthetic DMARD ^b		
Methotrexate use (ref: not use)	2.11 (1.38–3.21)	< 0.001
Leflunomide use (ref: not use)	2.06 (0.91–4.67)	0.082
Hydroxychloroquine use (ref: not use)	1.16 (0.87–1.55)	0.320
Sulfasalazine use (ref: not use)	0.95 (0.64–1.41)	0.791
Tacrolimus use (ref: not use)	1.00 (0.47–2.14)	0.991
NSAIDs use ^b (ref: not use)	1.15 (0.88–1.48)	0.306
Oral GC use ^b (ref: not use)	1.01 (0.81–1.26)	0.933
Targeted therapy ^b (ref: not use)	1.11 (0.65–1.89)	0.712

^a The first 12 weeks from conception

^b Medication use in the 3 months prior to conception

APO, Adverse pregnancy outcome; RA, Rheumatoid arthritis; OR, Odds ratio; CI, Confidence interval; NHI, National health insurance; CCI, Charlson comorbidity index; DMARD, disease-modifying anti-rheumatic drug; NSAID, Nonsteroidal anti-inflammatory drug; GC, Glucocorticoid.

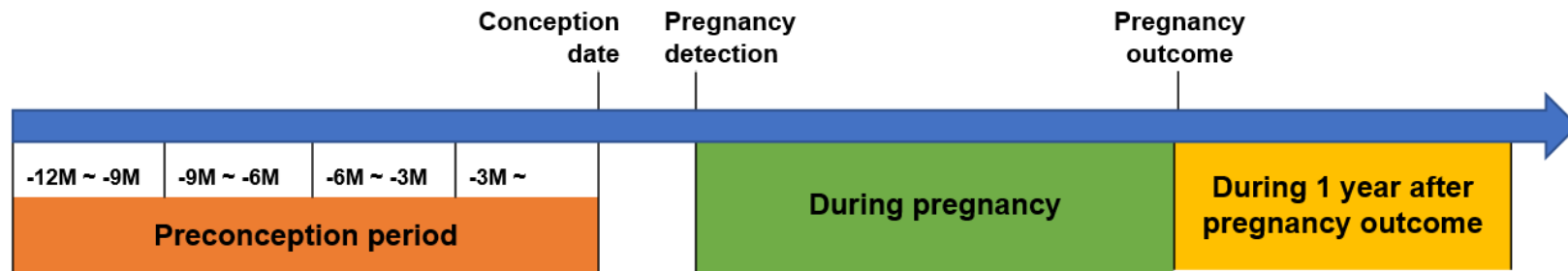
Supplementary Table 4. Factors associated with APOs versus delivery in patients with RA (including missing data)

Variables	Multivariable analysis (n = 5,728)	
	Adjusted OR (95% CI)	P
Age group, years (ref: 20~29)		
30~39	1.34 (1.08–1.66)	0.009
40~49	5.32 (4.14–6.84)	< 0.001
Type of insurance (ref: NHI)	1.40 (0.72–2.71)	0.320
Type of institution (ref: tertiary referral hospital)		
General hospital	0.93 (0.77–1.12)	0.418
Community hospital/clinic	1.33 (1.13–1.56)	< 0.001
Income group (ref: 1 st quartile)		
2 nd quartile	0.78 (0.63–0.97)	0.026
3 rd quartile	0.87 (0.71–1.06)	0.152
4 th quartile	0.84 (0.68–1.04)	0.117
Missing		
Seropositivity (ref: seronegative)	0.96 (0.82–1.12)	0.590
CCI score	1.05 (0.97–1.13)	0.211
Any hospital visit for RA during early pregnancy ^a	0.95 (0.78–1.16)	0.613
Conventional synthetic DMARD ^b		
Methotrexate use (ref: not use)	2.08 (1.53–2.84)	< 0.001
Leflunomide use (ref: not use)	2.57 (1.35–4.90)	0.004
Hydroxychloroquine use (ref: not use)	1.11 (0.90–1.37)	0.326
Sulfasalazine use (ref: not use)	0.85 (0.63–1.14)	0.279
Tacrolimus use (ref: not use)	1.00 (0.60–1.65)	0.991
NSAIDs use ^b (ref: not use)	1.16 (0.96–1.40)	0.128
Oral GC use ^b (ref: not use)	0.95 (0.81–1.11)	0.501
Targeted therapy ^b (ref: not use)	1.18 (0.79–1.76)	0.417
Multiple pregnancies (ref: one pregnancy)	1.09 (0.95–1.25)	0.214

^a The first 12 weeks from conception

^b Medication use in the 3 months prior to conception

APO, Adverse pregnancy outcome; RA, Rheumatoid arthritis; OR, Odds ratio; CI, Confidence interval; NHI, National health insurance; CCI, Charlson comorbidity index; DMARD, disease-modifying anti-rheumatic drug; NSAID, Nonsteroidal anti-inflammatory drug; GC, Glucocorticoid.



Supplementary Figure 1. Observation timeline of the study population