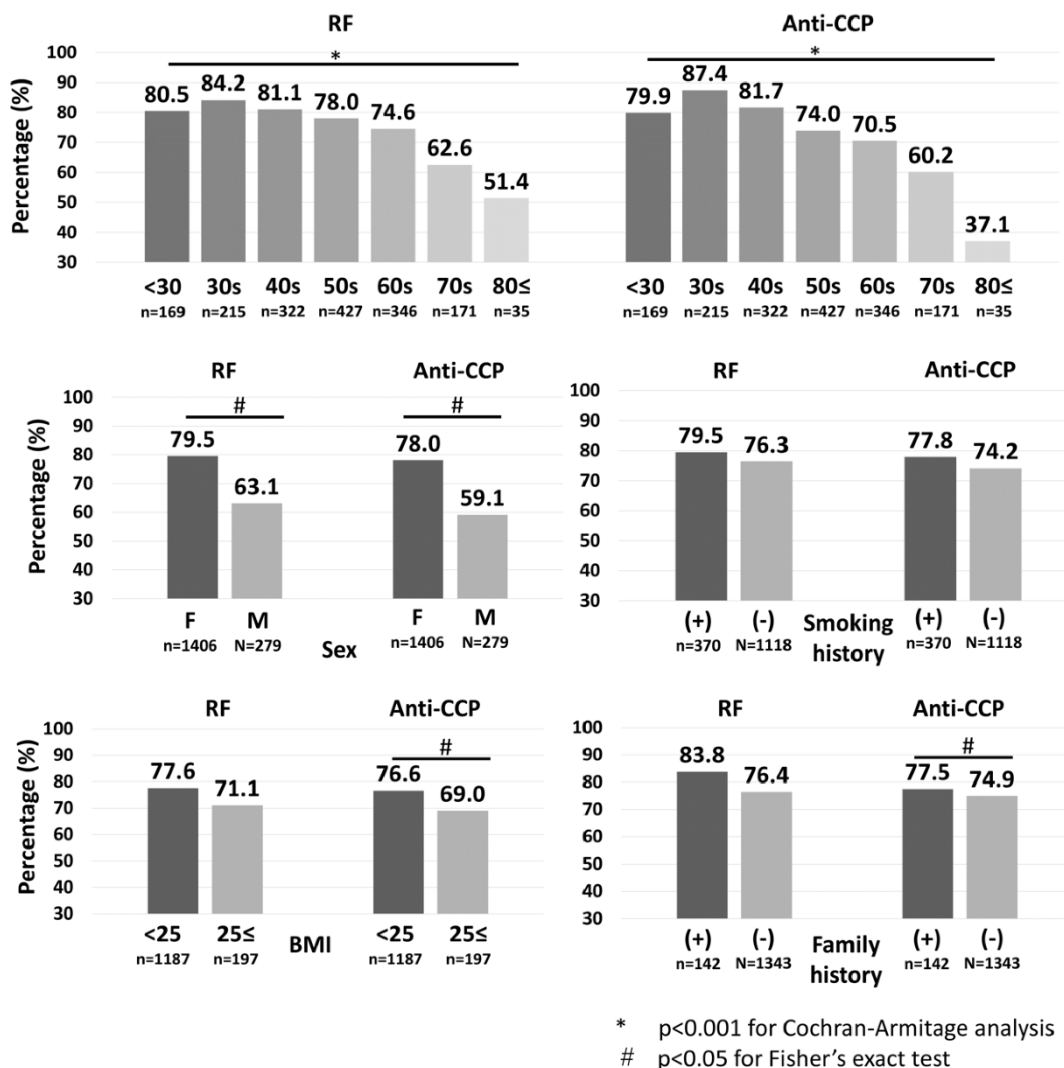


**Data Supplement**

**Supplementary Figure 1. Trend of positivity of RF and anti-CCP by age of RA**

**diagnosis**

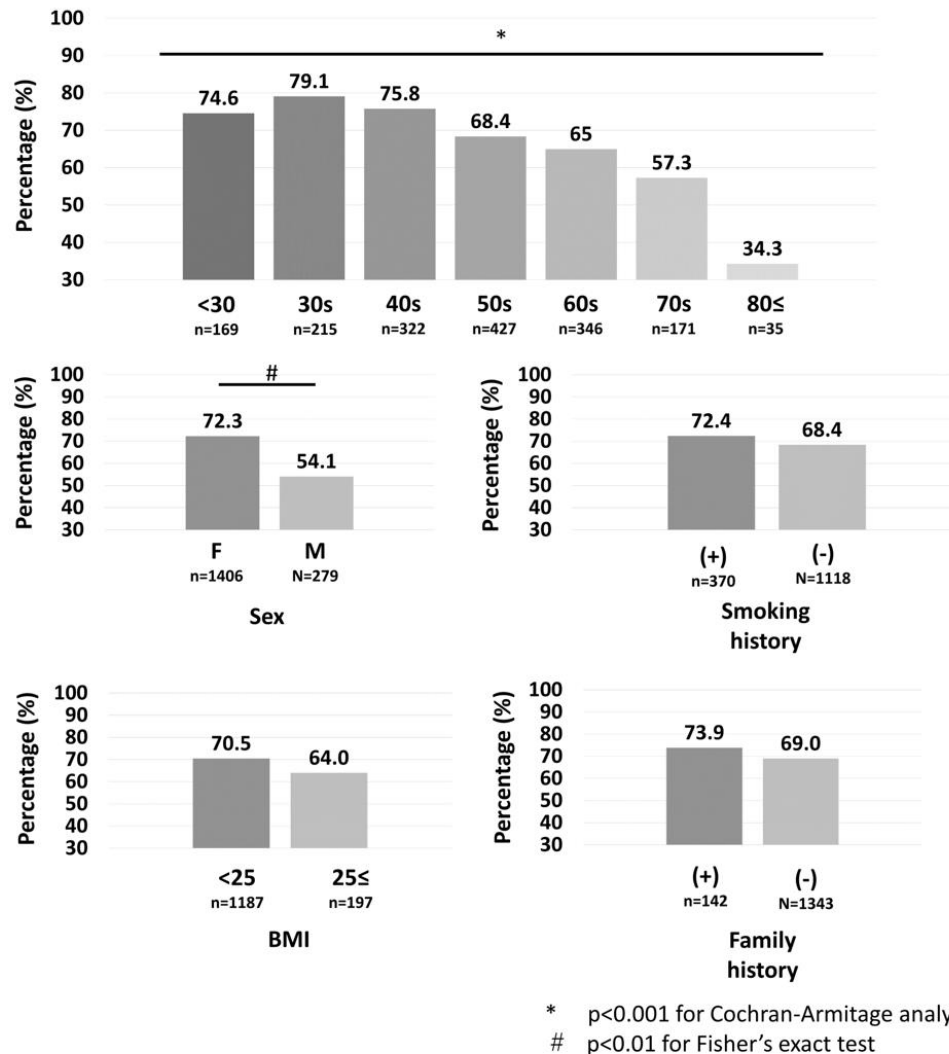


Positivity of RF and anti-CCP significantly declined along with the age at diagnosis.

anti-CCP, anti-cyclic citrullinated peptide antibody; BMI, body mass index; RF, rheumatoid factor

## Supplementary Figure 2. Trend of double positivity for RF and anti-CCP by age of

### RA diagnosis



Double positivity of RF and anti-CCP significantly declined along with the age at diagnosis.

anti-CCP, anti-cyclic citrullinated peptide antibody; BMI, body mass index; RF, rheumatoid factor

Supplementary Table 1. Effect of Ageing on prevalence of RF and anti-CCP

	Cochran-Armitage		Binomial logistic regression					
	RF P value	Anti-CCP P value	OR	RF 95% CI	P value	OR	Anti-CCP 95% CI	P value
All, n=1685								
<b>Age at diagnosis</b>			<b>0.980</b>	<b>0.971-0.989</b>	<b>&lt;0.001</b>	<b>0.976</b>	<b>0.967-0.985</b>	<b>&lt;0.001</b>
<b>Sex (female)</b>			<b>2.120</b>	<b>1.500-3.010</b>	<b>&lt;0.001</b>	<b>2.660</b>	<b>1.860-3.720</b>	<b>&lt;0.001</b>
<b>Smoking history</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>1.620</b>	<b>1.160-2.260</b>	<b>0.005</b>	<b>1.730</b>	<b>1.240-2.420</b>	<b>0.001</b>
BMI (<25)			1.270	0.887-1.820	0.19	1.340	0.938-1.900	0.11
Family history			1.630	0.983-2.700	0.06	1.090	0.692-1.720	0.71
Female, n=1406								
<b>Age at diagnosis</b>			<b>0.979</b>	<b>0.968-0.989</b>	<b>&lt;0.001</b>	<b>0.970</b>	<b>0.960-0.980</b>	<b>&lt;0.001</b>
<b>Smoking history</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	1.400	0.938-2.090	0.10	<b>1.630</b>	<b>1.080-2.470</b>	<b>0.02</b>
BMI (<25)			1.230	0.806-1.870	0.34	1.340	0.884-2.20	0.17
Family history			1.320	0.770-2.250	0.31	1.020	0.611-1.690	0.95
Male, n=279								
Age at diagnosis			0.986	0.967-1.010	0.18	0.996	0.977-1.010	0.66
<b>Smoking history</b>	0.70	0.66	<b>2.120</b>	<b>1.190-3.770</b>	<b>0.01</b>	<b>1.870</b>	<b>1.080-3.250</b>	<b>0.03</b>
BMI (<25)			1.430	0.697-2.950	0.33	1.290	0.646-2.570	0.47
<b>Family history</b>			<b>4.910</b>	<b>1.080-22.20</b>	<b>0.04</b>	1.460	0.523-4.050	0.47
Non-smoking history, n=1118								
<b>Age at diagnosis</b>			<b>0.978</b>	<b>0.968-0.988</b>	<b>&lt;0.001</b>	<b>0.973</b>	<b>0.963-0.983</b>	<b>&lt;0.001</b>
<b>Sex (female)</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>2.500</b>	<b>1.600-3.910</b>	<b>&lt;0.001</b>	<b>2.790</b>	<b>1.790-4.360</b>	<b>&lt;0.001</b>
BMI (<25)			1.340	0.886-2.020	0.17	1.340	0.888-2.020	0.16
Family history			1.350	0.771-2.380	0.29	1.230	0.714-2.130	0.45
Smoking history, n=370								
Age at diagnosis	0.16	<b>0.02</b>	0.992	0.971-1.010	0.48	0.989	0.969-1.010	0.33
<b>Sex (female)</b>			<b>1.790</b>	<b>1.020-3.140</b>	<b>0.04</b>	<b>2.630</b>	<b>1.520-4.550</b>	<b>&lt;0.001</b>
BMI (<25)			1.140	0.535-2.420	0.74	1.300	0.640-2.650	0.47
Family history			3.160	0.928-10.80	0.07	0.826	0.358-1.900	0.65
BMI < 25, n=1187								
<b>Age at diagnosis</b>			<b>0.978</b>	<b>0.968-0.987</b>	<b>&lt;0.001</b>	<b>0.974</b>	<b>0.965-0.984</b>	<b>&lt;0.001</b>
<b>Sex (female)</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>2.000</b>	<b>1.360-2.940</b>	<b>&lt;0.001</b>	<b>2.650</b>	<b>1.810-3.890</b>	<b>&lt;0.001</b>
<b>Smoking history</b>			<b>1.530</b>	<b>1.070-2.200</b>	<b>0.02</b>	<b>1.730</b>	<b>1.200-2.490</b>	<b>0.003</b>
Family history			1.720	0.968-3.070	0.06	0.940	0.572-1.550	0.81
BMI ≥ 25, n=197								
Age at diagnosis			1.000	0.974-1.030	0.93	0.990	0.963-1.020	0.46
<b>Sex (female)</b>	0.64	0.18	<b>2.840</b>	<b>1.240-6.540</b>	<b>0.01</b>	<b>2.630</b>	<b>1.180-5.900</b>	<b>0.02</b>
Smoking history			2.270	0.939-5.510	0.07	1.630	0.714-3.740	0.25
Family history			1.260	0.428-3.700	0.68	2.130	0.670-6.750	0.20

Family history (+)								
n=142								
<b><u>Age at diagnosis</u></b>	<b><u>0.02</u></b>	<b><u>0.007</u></b>	0.971	0.942-1.000	0.07	<b><u>0.969</u></b>	<b><u>0.943-0.996</u></b>	<b><u>0.02</u></b>
Sex (female)			0.669	0.124-3.620	0.64	1.460	0.440-4.880	0.53
Smoking habit			2.510	0.618-10.20	0.20	0.842	0.302-2.350	0.74
BMI (<25)			1.890	0.679-6.170	0.29	0.606	0.181-2.030	0.42
Family history (-)								
n=1343								
<b><u>Age at diagnosis</u></b>	<b><u>&lt;0.001</u></b>	<b><u>&lt;0.001</u></b>	<b><u>0.981</u></b>	<b><u>0.972-0.991</u></b>	<b><u>&lt;0.001</u></b>	<b><u>0.977</u></b>	<b><u>0.967-0.986</u></b>	<b><u>&lt;0.001</u></b>
<b><u>Sex (female)</u></b>	<b><u>&lt;0.001</u></b>	<b><u>&lt;0.001</u></b>	<b><u>2.280</u></b>	<b><u>1.590-3.260</u></b>	<b><u>&lt;0.001</u></b>	<b><u>2.810</u></b>	<b><u>1.960-4.030</u></b>	<b><u>&lt;0.001</u></b>
<b><u>Smoking habit</u></b>			<b><u>1.570</u></b>	<b><u>1.110-2.210</u></b>	<b><u>0.01</u></b>	<b><u>1.850</u></b>	<b><u>1.300-2.640</u></b>	<b><u>&lt;0.001</u></b>
BMI (<25)			1.240	0.847-1.810	0.27	1.450	0.997-2.100	0.05

anti-CCP, anti-cyclic citrullinated peptide antibody, RA, rheumatoid arthritis; RF,

rheumatoid factor; BMI, body mass index; CI, confidence interval; OR, odds ratio