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MORTALITY

Psoriatic Arthritis – A Mortality Abstract

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Objective.—To analyze a published study on all-cause mortality between psoriatic arthritis and matched population comparator-subjects to derive comparative mortality statistics applicable to life insurance underwriting.

Method.—The pixel method was employed for extracting cumulative survivals. It was chosen for its capability to extract data from published graphs despite potential precision and reliability limitations.

Results.—The mortality analysis indicated an increase in mortality starting in year 4, aligning with the Table rating for Psoriatic arthritis. Pharmacological treatment data from the study revealed only 28% were on advanced therapies such as targeted synthetic or biologic DMARDs. This low percentage suggests most of the cohort had milder PsA, as advanced treatments are generally reserved for moderate to severe psoriatic arthritis. The distribution of treatment regimens provides essential insights into disease severity and its implications for mortality assessment.

Conclusion.—The comparative mortality findings correspond to Table rating for psoriatic arthritis. This finding underscores the importance of understanding treatment profiles and disease severity in life insurance underwriting to accurately assess risk.

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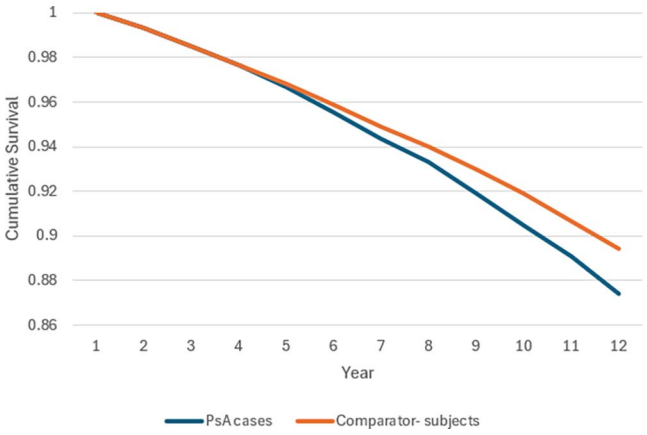
This article presents an analysis of a mortality experience among males and females with psoriatic arthritis for the purpose of determining approximate life insurance ratings.

A recent article in *Annals of Rheumatic Disease*[1] examined all-cause mortality between psoriatic arthritis (PsA) and the general population in Sweden. It was a prospective cohort study of outpatients with PsA from rheumatology and internal medicine practices. It was nationwide, matched population comparator-subjects. Data was collected starting July 1, 2006. The follow-up period was January 1, 2007, to December 31, 2018. The study age group was from under 40 to over 80. The final study population: 33,026 PsA (M 45%, mean age 52) and 161,094 comparator-subjects (M45%, mean age 52). In 1.8% of the PsA cohort, each participant was matched with 3 or fewer comparator subjects. Thirty-eight percent (38%) of PsA cases were diagnosed before January 1, 2007, representing the longer-duration subset. During the 12-year study period, both groups were followed for a median of 8.8 years (IQR). There were 9.4% deaths in the PsA group and 8% deaths in the comparator group. Out of the total participants, 312 individuals in the PsA group and 2858 in the comparator group were excluded from the study analysis because of loss of follow-up. Five hundred and twenty-five comparator subjects were removed from the analysis upon developing PsA.

The study authors concluded there was a 10% increase in the all-cause mortality rate among PsA cases, compared to comparator subjects, HR 1.11 (95% CI: 1.07 to 1.16) and



Adapted from Exarchou S, Di Giuseppe D, Klingberg E, et al, 2024. Data was modified to illustrate the cumulative survival of psoriatic arthritis compared to that of the comparator subjects.

a crude incidence rate ratio (IRR) of 1.18 (95% CI: 1.13 to 1.22). This was driven by the female PsA cases HR: 1.23 (95% CI: 1.16 to 1.30) and longer duration of PsA HR: 1.18 (95% CI: 1.12 to 1.25). Crude IRR for female PsA cases were elevated except below age <40 years 1.00 (95% CI: 0.42 to 2.42).

The survival experience of the cohorts in the study was summarized in several survival curves. This article analyzed the combined gender survival curve to develop mortality ratios and excess death rates using conventional methods. The ''pixel method''[2] was used to extract the cumulative survival rates for PsA cases and comparator, for each of the 12 yearly intervals as raw data was unavailable. One advantage of using the pixel method for abstract graphed data is the accessibility of tools like the Paint application on Windows systems. However, while effective for data extraction, this method can introduce potential errors that may affect the precision and reliability of cumulative survival results particularly when the published graph is of poor quality, or the image resolution is low.

Figure shows an adaptation of the combined-gender survival data for PsA cases and comparator subjects. From the adapted cumulative survival curve, interval observed and expected p and q were then calculated. Table presents observed and expected mortality rates, mortality ratios, and excess death rate from combined gender. Rounding was done at the final stage of Table preparation.

DISCUSSION

The purpose of this article was to analyze a relevant survival study and derive comparative mortality statistics applicable to life insurance underwriting for psoriatic arthritis.

Comparative Mortality Experience by Year for Psoriatic Arthritis vs Comparator Subjects for Combined Gender

Interval	Q	Q′	q	q′	MR q/q′ × 100	EDR q-q′ ×1000
1	0.00660	0.00660	0.00660	0.00660	100.0	0.0
2	0.01499	0.01499	0.00845	0.00845	100.0	0.0
3	0.02339	0.02339	0.00852	0.00852	100.0	0.0
4	0.03358	0.03178	0.01044	0.00860	121.4	1.8
5	0.04468	0.04108	0.01148	0.00960	119.6	1.9
6	0.05637	0.05127	0.01224	0.01060	115.5	1.6
7	0.06687	0.05997	0.01112	0.00917	121.3	2.0
8	0.08096	0.07046	0.01510	0.01116	135.3	3.9
9	0.09535	0.08126	0.01566	0.01161	134.9	4.1
10	0.10915	0.09325	0.01525	0.01305	116.9	2.2
11	0.12594	0.10555	0.01885	0.01356	139.0	5.3
12	0.14183	0.11904	0.01818	0.01508	120.6	3.1
			geo q	geo q′		
0–12			0.01266	0.01051	120.5	2.2

The mortality analysis revealed an increase in mortality starting in year 4 of the PsA cohort. The comparative mortality findings correspond to Table ratings for psoriatic arthritis.

The study also provided valuable insights into pharmacological treatments within the PsA cohort. Interestingly, only 28% of the PsA cohort during the follow-up period were on targeted synthetic disease-modifying anti-rheumatic drug (DMARDs) or biologic DMARDs. This is noteworthy, as targeted synthetic DMARDs and biologic DMARDs are typically prescribed for patients with moderate to severe psoriatic arthritis who do not respond to or cannot tolerate DMARDs. This low percentage is significant as it indicates that the majority of cohort may not have had severe enough disease to warrant advanced therapies.

This finding provides valuable comparative mortality data that can aid life insurance underwriting, highlighting the importance of disease severity and treatment regimens in assessing risk.

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