Serum PSA levels measured in midlife are predictive of future mortality from prostate cancer according to new research published in the Journal of Clinical Oncology. The results of this study suggest PSA screening for men aged 45–59 should be considered.

Previous research showed that serum PSA concentrations predicted death from prostate cancer in an unscreened Swedish population. Preston and colleagues tested if PSA concentration could predict mortality in an opportunistically screened population in the USA.

The investigators conducted a nested case-control study among men aged 40–59 years who had a blood sample taken before they participated in the Physicians’ Health Study. Overall, PSA data were available for 234 men who developed prostate cancer and 711 age-matched controls. Of these participants, 71 had lethal cancer, and these were rematched to 213 controls.

Baseline median PSA level varied and increased with increasing age; however, across all age groups, men with a PSA concentration above the median were consistently at significantly increased risk of developing prostate cancer (OR = 7.3 for men aged 40–49 years, 7.6 for those aged 50–54 years, and 10.1 for men 55–59 years old). For men with PSA levels in the 90th percentile, the odds ratios were even greater. A strong association between PSA concentration in midlife and risk of lethal prostate cancer was observed, 82%, 71%, and 86% of lethal prostate cancer events occurred in men with PSA levels above the median at ages 40–49 years, 50–54 years, and 55–59 years, respectively. The absolute risk of developing lethal prostate cancer for men with PSA concentrations below the median at baseline were low (0.19% for men aged 40–44 years, 0.51% for men aged 45–49 years 1.62% for those aged 50–54 years, and 0.59% for men 55–59 years old).

Future risk of developing prostate cancer was well discriminated by PSA level in midlife, with areas under the operating curve (AUC) of 0.83 for men aged 40–49 years and 0.80 for those aged 50–54 years and 55–59 years, as was risk of lethal disease (AUC = 0.75, 0.72, and 0.76, for men aged 40–49, 50–54, and 55–59 years, respectively).

These results show that a single baseline PSA value obtained opportunistically during midlife is predictive of the development of lethal prostate cancer in a US population, suggesting that men with increased PSA levels in midlife should be more intensively screened than those with values at or below the median. These data also indicate that risk-stratified PSA screening should perhaps be conducted earlier than is currently recommended.

Louise Stone