Prevalence and progression of monoclonal gammopathy of undetermined significance and light-chain MGUS in Germany.

We determined the prevalence and progression rate of monoclonal gammopathy of undetermined significance (MGUS) and light-chain MGUS (LCMGUS) in Germany utilizing the biobank of the population-based Heinz Nixdorf Recall Study. The Heinz Nixdorf Recall Study comprises 4,814 men and women aged 45-75 years. To detect monoclonal proteins, standard serum electrophoresis was combined with parallel screening immunofixation using pentavalent antisera. Additionally, free light chains (FLC) were measured in all samples. Definition of MGUS included M-protein concentration, laboratory results, and disease history. LCMGUS was defined as abnormal FLC ratio, increase in FLC causing the abnormal ratio, and lack of intact immunoglobulin. One hundred sixty-five MGUS cases were identified among 4,702 screened samples (prevalence 3.5%, 95% confidence interval (CI) 3.0-4.1; median age 63 years, range 47-75 years; 103 (62%) male; IgG 59%, IgA 17%, IgM 17%, biclonal 4.8%, kappa 56%, and lambda 44%). Five cases progressed (0.6%/year, 95% CI 0.2-1.4). An abnormal FLC
ratio was detected in 220 samples. Thirty-nine of these showed intact immunoglobulin. Thirty-four of the remaining met LCMGUS criteria (prevalence 0.7%, 95% CI 0.5-1.0). None of the LCMGUS cases progressed. We demonstrate a MGUS prevalence of 3.5% and a LCMGUS prevalence of 0.7% in the general population aged 45-75 years in Germany using a sensitive screening approach.