International Variations and Trends in Renal Cell Carcinoma Incidence and Mortality

A. Znaor, J. Lortet-Tieulent, M. Laversanne, A. Jemal and F. Bray

Section of Cancer Surveillance, International Agency for Research on Cancer, Lyon, France, and American Cancer Society, Atlanta, Georgia


CONTEXT: Renal cell carcinoma (RCC) incidence rates are higher in developed countries, where up to half of the cases are discovered incidentally. Declining mortality trends have been reported in highly developed countries since the 1990s.

OBJECTIVE: To compare and interpret geographic variations and trends in the incidence and mortality of RCC worldwide in the context of controlling the future disease burden.

EVIDENCE ACQUISITION: We used data from GLOBOCAN, the Cancer Incidence in Five Continents series, and the World Health Organisation mortality database to compare incidence and mortality rates in more than 40 countries worldwide. We analysed incidence and mortality trends in the last 10 yr using joinpoint analyses of the age-standardised rates (ASRs).

EVIDENCE SYNTHESIS: RCC incidence in men varied in ASRs (World standard population) from approximately 1/100,000 in African countries to >15/100,000 in several Northern and Eastern European countries and among US blacks. Similar patterns were observed for women, although incidence rates were commonly half of those for men. Incidence rates are increasing in most countries, most prominently in Latin America. Although recent mortality trends are stable in many countries, significant declines were observed in Western and Northern Europe, the USA, and Australia. Southern European men appear to have the least favourable RCC mortality trends.

CONCLUSIONS: Although RCC incidence is still increasing in most countries, stabilisation of mortality trends has been achieved in many highly developed countries. There are marked absolute differences and opposing RCC mortality trends in countries categorised as areas of higher versus lower human development, and these gaps appear to be widening.

PATIENT SUMMARY: Renal cell cancer is becoming more commonly diagnosed worldwide in both men and women. Mortality is decreasing in the most developed settings, but not in low- and middle-income countries, where access to and the availability of optimal therapies are likely to be limited.