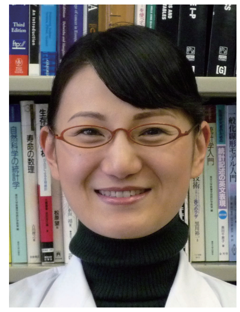
Trends in incidence, mortality and survival for kidney cancer in Osaka, Japan



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Background

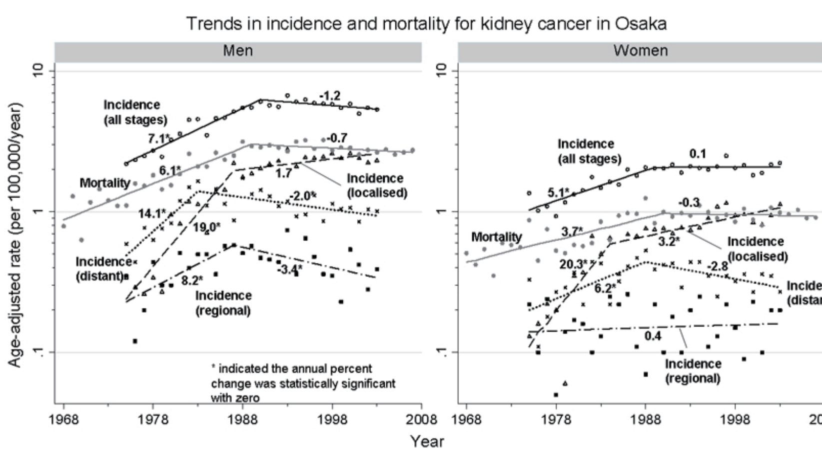
Development and wide use of imaging diagnostic tools such as ultrasonography enabled us to detect kidney cancer at an earlier stage. Rising incidence of kidney cancer has been reported in some countries. Both increase of risk factors and over-diagnosis have been considered as the reason. In Japan, however, there are few reports focusing descriptive epidemiology for kidney cancer using population-based data. We aimed to monitor trends in cancer statistics for kidney cancer in Osaka, Japan.

Methods

We calculated age-standardised mortality rates (1968-2007) and incidence rates (1975- 2003) for kidney cancer (ICD 10 code: C64). We applied joinpoint regression model to the trends in mortality, incidence and stage-specific incidence rates. The model can identify the joinpoints which were the years to start change in the trends by permutation test method. The model can also estimate annual percent change (APC) of each segment between joinpoints and test if it is significantly different from zero (P<0.05). The logarithmic age-standardised incidence or mortality rates were used as the dependent variables, and years of diagnosis or death were used as the independent variables in the model. We also observed trends in five-year relative survival (1975-2000) for all stage and stage-specific patients and the stage distribution for kidney cancer.

Results

Mortality for kidney cancer in men increased rapidly from 1968 to 1989 (APC=6.1*) and levelled-off from 1989 to 2007 (APC=-0.7, not statistically significant change: N.S). Incidence for kidney cancer in men also remarkably increased from 1975 to 1990 (APC=7.1*) and then levelled-off from 1990 to 2003 (APC=-1.2, N.S). Similar trends were shown in women. The incidence for the localised increased drastically until 1984 (APC=19.0* in men, 20.3* in women), then levelled-off in men (APC=1.7, N.S), while still increased in women (APC=3.2*). The incidence for the distant started decreasing from 1983 (APC=-2.0*) in men and levelled-off or decreased from 1988



(APC=-2.8, N.S.) in women.
Five-year relative survival for all stages increased from 14.5% (diagnosed in 1975-80) to 62.5% (1996-2000). Stage-specific five-year survival also dominantly increased from 1975-80 to 1996-2000 (localised: 40.6% to 88.1%, regional: 2.9% to 41.4%, and distant: 1.4% to 14.5%). Stage distribution shifted to an earlier stage (percentage of the localised: 36.4% to 59.9%).

Conclusion

Remarkable increase in the incidence and mortality until the end of 1980s may be related with wider use of new diagnostic tools (such as ultrasonography) and increase of risk factors (such as smoking and obesity). Both an earlier stage shifting and improvement in survival may be also due to increase in early detection of pre-symptomatic kidney cancer by wider use of imaging diagnostic tools. Although the survival improved and the incidence for the distant decreased, the mortality has not decreased yet. We need to monitor those statistics for longer period to evaluate whether the increase of earlier detection is simply due to over diagnosis or effective to reduce mortality.