Tumor Size Has a Time-Varying Effect on Recurrence in Cervical Cancer

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ABSTRACT

Objective: This study analyzed the risk factors for their possible association with overall survival and progression-free survival in cervical cancer, with a flexible model that allowed time-varying effects.

Methods: Information about patients with cervical cancer from 2002 to 2012 was collected in the Kaohsiung Veterans General Hospital. All available biological and clinicopathologic factors were tested for the assumption of the Cox proportional hazard model, that is, whether they had time-varying effect on survival. The factors were also analyzed in univariate and multivariate statistics to identify independent risk factors. The multivariate analysis was performed with an extended Cox model so that those factors that failed the assumption test were allowed to vary with time.

Results: Approximately 797 patients were included in the final analysis. Most factors tested passed the Cox assumption test, except tumor size and body mass index in the event of recurrence and preoperative CA125 values in the event of death (P < 0.05). Univariate and multivariate analysis identified tumor size, stage, and lymph nodal metastasis as independent significant risk factors for both recurrence and death (P < 0.05), with tumor size being a time-varying factor for recurrence.

Conclusions: Patients with larger tumor size, higher FIGO stage, and lymph nodal metastasis are faced with higher risk of recurrence and death. A larger tumor size poses increasingly higher risk for recurrence initially, and its importance declines as the patient survives longer without disease progression. These findings may be helpful to gynecologists when assessing tumor risk of patients with cervical cancer and in patient consultation.

Keywords: time-varying effect, cervical cancer, Cox model, survival

REFERENCES