

Comparison of stratified weibull model and weibull Accelerated Failure Time (AFT) model in the analysis of cervical cancer survival

Abstract

Cervical cancer is the fourth most common cancer affecting women worldwide, after breast, colorectal, and lung cancers with 528 000 new cases every year. It is also the fourth most common cause of cancer death with 266 000 deaths in 2012 among women worldwide. In Malaysia it remains to be a great concern among clinicians; yet published works on survival of cervical cancer patients are somewhat limited. In this study, two survival regression models which are parametric Stratified Weibull model and Weibull Accelerated Failure Time (AFT) model are considered as the alternative and improvement of the well-known Cox proportional hazard model to evaluate the prognostic factor that effect on survival of patients with cervical cancer. Comparisons were made to find the best model. Data were taken from Hospital University Science Malaysia (HUSM) over a period of 12 years. From the analyses it was found that the AFT model was the most appropriate. The AFT model has shown that the median survival time for patient at stage III & IV (14 months) is about one third that of those at stages I & II (40 months) for the same distant metastasis group. While, the median survival time for patient with distant metastasis (17 months) is half that of those without distant metastasis (34 months) for the same stage group.