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Factors affecting the prevalence of lung cancer and the survival of lung cancer patients

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The study focuses on lung cancer, which is one of the common cancers found among Sri Lankans as well as one of the leading causes of death in the island. The data for the statistical analysis is from a survey conducted among 256 cancer patients who were treated at National Cancer Hospital in Maharagama from April to August 2004. Among them, 128 were diagnosed with lung cancer and these were taken to be cases while other 128 were diagnosed with other types of cancer and these were taken to be controls.

The primary objective of this case control study was to identify significant factors that cause lung cancer. In order to achieve this objective, a binary logistic model was fitted taking lung cancer or other types of cancer as the response. From the analysis, the important factors that cause lung cancer were found to be exposure to contaminated air at work place as well as general exposure to air contaminants ranging from fine particles to hazardous chemicals. In addition, smoking cigarettes, which combines the nature of exposure, number of cigarettes smoked and the number of years smoked is one of the most important causes of cancer. Furthermore, exposure to domestic smoke such as mosquito coils was also found to be a factor that affects lung cancer.

The secondary objective of the analysis was to identify the factors that contribute to the survival of the lung cancer patients. To achieve this objective, Cox proportional hazard model was fitted to the data. With respect to the results given by the model, the most significant factor that increases the risk of death is the age of the patients. As age increases, the hazard of death increases very significantly. The smoking habit is also an adverse factor for the survival of the patients. With respect to a smoker, increase in the number of years smoked and the number of cigarettes smoked per day, make the risk of death also increase. In addition, with respect to a patient who is not exposed to any other domestic smoke, the exposure to mosquito coils increases the hazard of death as the number of hours the patient is exposed to increases. Furthermore, a male patient has lower survival probability than a female.

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