OPTIMIZED FREQUENCY OF POST-THERAPEUTIC FOLLOW-UP VISITS

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Follow-up visits for cancer patients are planned at regular intervals with little variation between disease sites and prognostic factors. This strategy is not optimal in the sense that many visits will detect no recurrent events, even though patients are reassured. With a better knowledge of the dynamic process of recurrent events and individual patient characteristics, the planning can be optimized.

The two-step strategy we propose is based on an identification of prognostic factors for disease-specific recurrence using a Cox proportional hazards regression model. Then log-normal competing risk modelling is used to estimate the covariate adjusted cumulative incidence functions, which provide information as to when the recurrent events are most likely to occur. This parametric modelling is necessary since data on disease recurrence is mostly available at scheduled visits and the exact data of this event is not known. The follow-up schedules are then based on equally spaced quantiles of these functions, rather than equally spaced time intervals, which is current practice. Data from clinical trials in several cancer sites are used as examples.

The methods presented here provide knowledge of the dynamic process of recurrent events, and can help in planning follow-up visits. These recommendations are optimal in the statistical sense and concern asymptomatic patients. These methods can also be used for detecting other events such as long term side effects after radiotherapy.