The competing risk approach adapted to left truncation allows reliable estimation of abortion risk from observational studies

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This paper is on application of competing risk methods for incomplete data from observational studies. The main focus is outcome of pregnancies and risks, possibly associated with a drug exposure.

Spontaneous abortion rates are of general interest when investigating pregnancy outcome. In most studies observations are left truncated as pregnant women enter with a certain delay. Always, spontaneous abortions have to be considered as only one of several competing events, as pregnancy may be terminated by induced abortion as well or ends in a live birth.

The probability of spontaneous abortion is estimated using the well known event-history based approach for the sub-distributions of competing risks. When left-truncation ise handled appropriately variance estimation enables the construction of approximate confidence intervals and of a simple test-statistic for comparing rates between cohorts of exposed and controls.

The proposed methods are applied to a comparative prospective study (Schaefer et al 2006) on the association of spontaneous abortions and exposure to coumarin derivatives.

Schaefer C, Hannemann D, Meister R, et al. Vitamin K antagonists and pregnancy outcome. A multi-centre prospective study. Thromb Haemost 2006;95:949 57.