GENERALIZATION OF GREENWOOD'S FORMULA FOR STANDARD ERROR OF THE AGE-ADJUSTED RELATIVE SURVIVAL RATIO

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The age-adjusted relative survival ratio is used to compare population-based cancer survival patterns when the population age structures differ. Traditionally, the direct adjustment method based on age-specific relative survival ratios has been used. In a new method (Brenner et al., Eur J Cancer, 2004, 40: 2317-2322,), a specific weight depending on the age structure of the standard population is first assigned to each patient leading to a use of weighted counts. The relative survival ratio is then calculated in the conventional way. But, no standard error of the age-adjusted relative survival estimate has been reported. In this presentation, we introduce a generalization of the well-known Greenwood formula for that purpose. The method is also applicable for observed survival and when the observed survival probabilities of the patient population differ by age stratum. The traditional Greenwood formula is a special case of the method when no specific weights are used and the observed survival probability is the same in each stratum.