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Survival analysis: Part I — analysis of time-to-event

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Corrigendum

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This corrects the article "Survival analysis: Part I — analysis of time-to-event" on page 190.

The article by In and Lee entitled "Survival analysis: Part I — analysis of time-to-event", contained an error in the sample size calculation example. The calculated numbers are incorrect; here, we present the corrected calculation process and results.

Supposing that these five patients were observed for four weeks on average, the hazard rate (λ) is 2/(5 × 4 weeks) = 0.1/person-week. The value of the 4-week survival function for conventional drug A, estimated using the relationship between the survival function and hazard function, is $S_A(4) = \exp(-0.1 \times 4) = 0.670$. Since new drug B decreases recurrence by 30%, the hazard ratio is 0.7, and the value of the 4-week survival function for new drug B is $S_B(4) = \exp((-0.1 \times 0.7) \times 4) = 0756$. If both groups have the same sample size, $\pi_1 = \pi_2 = 0.5$, the probability of an event, which is the denominator of the sample size calculation formula, is $1 - (\pi_1 S_1(t) + \pi_2 S_2(t)) = 1 - (0.5 \times 0.670 + 0.5 \times 0.756) = 0.287$. The total event count, which is the numerator of the sample size calculation formula, can be obtained from Equation 3. $z_{\alpha/2}$ and z_β, which represent the values of probability in a standard normal distribution, are 1.96 and 0.842, respectively, for a significance level of 0.05 and statistical power of 80%. With the values of π_1 and π_2 set to 0.5 each and the hazard ratio set at 0.7, the total event count required is $(1.96 + 0.842)^2/\{0.5 \times 0.5 \times (\log 0.7)^2\} = 246.9$, i.e., 247 events. Substituting this value and the incidence rate into Equation 4, 247/0.287 = 860.6, i.e., 861 is obtained.

Applying the generally assumed withdrawal rate of 10% to the value obtained, 861/(1 – 0.1) = 956.7, i.e., a total of 957 subjects, is set as the required sample size. With the group size ratio set at 0.5, 479 subjects are to be assigned to each group.

The authors apologize for any inconvenience these mistakes may have caused.