



The Hong Kong College of Anaesthesiologists
Final Fellowship Examination
Paper II – Critical Appraisal
10 September 2018 (Monday)
11:30 – 12:40 hours

Article

Association between exposure of young children to procedures requiring general anesthesia and learning and behavioral outcomes in a population-based birth cohort. *Anesthesiology* 2017; 127:227-40

Instructions

- a. Write down your candidate number in the space provided on the top of each page.
- b. In each of the 10 statements below, indicate clearly whether it is correct or incorrect. Write down **true (T)** or **false (F)** in the bracket next to each question with ink or ball-point pen.
- c. All questions carry equal mark.
- d. Answer all questions in 10 minutes.

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| 1 | This paper described a trial comparing the impact of multiple with single or no exposures to anesthetics on the development of learning disabilities and attention deficit/hyperactivity disorder in children. | [] |
| 2 | Using data from the birth registry, this study avoided biases by including all live births with accurate data on the exposure to general anaesthesia within 3 years after birth. | [] |
| 3 | The reference group in this study was children not having surgery before age 3 years of birth. | [] |
| 4 | In the abstract, the paper stated that “For the 116 multiply exposed, 457 singly exposed, and 463 unexposed children analyzed, multiple, but not single, exposures were associated with an increased frequency of both learning disabilities and attention-deficit/hyperactivity disorder (hazard ratio for learning disabilities = 2.17 [95% CI, 1.32 to 3.59], unexposed as reference)”. This means that the risk of developing learning disabilities in children with multiple exposures to general anesthetics occurred 2.17 times earlier than children who had never exposed to anesthetics during the study period. | [] |

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- 5 Propensity score techniques provided matched groups of patients with and without anesthetic exposure with respect to sex, birth weight, gestational age, mother's education and socio-economic status. []
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- 6 With respect to the data shown in *Figure 1*. The accuracy on frequency of learning disabilities or attention deficit/hyperactivity disorder decreased with age. []
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- 7 In the text underneath (legend) *Figure 1*, the term "censored" refers to children who did not complete follow-up to 18 years old. []
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- 8 With respect to *Figure 1A and 1B*. The green band of the multiple-exposed group was wider than the red band of single-exposed or the blue band of unexposed group because the hazard ratios in the multiple-exposed group was higher than that in the single-exposed or unexposed groups. []
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- 9 In *Tables 6*, it was noted that the hazard ratio (95%CI) for total duration of anesthesia exposure, continuous (per 30 min) was 1.05 (1.01 to 1.09). Based on this information, for a child having a 60-min anesthetics, the risk for developing ADHD should be 2-fold higher than those never had an anesthetic. []
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- 10 This study demonstrated that multiple exposure of general anesthetics within 3 years after birth increased the risk of learning disabilities and attention-deficit/hyperactivity disorder up to 18 years of age. []
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