Reviewer's report

Title: Atrial fibrillation in healthy adolescents following highly caffeinated beverage consumption: a case series

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Reviewer: Yun Wong

Comments to authors:

• This is a well written case report, on a subject which is both interesting and relevant to current medical practise.
• The case report is well structured, and ethical.
• The introduction adequately sets the scene and discusses relevant issues.
• The first case is interesting, however it must be discussed that even though a range of tests was conducted there was no proof that the atrial fibrillation was caused by the high caffeine drink a day prior to the race. As mentioned in the discussion, the half life of caffeine varies from 2.5 hours to 10 hours, so this patient may well have cleared most of the caffeine if the drink was drunk a day before the race.
• I feel that when discussing this case, the authors must mention that a normal ECHO would rule out other causes for this arrhythmia.
• Case 2 again is an interesting case, however once again there is no complete proof that the caffeine has induced the AF. A blood ethanol level of 155 mg/decilitre, may well cause mild to moderate intoxication in an adult. Therefore, as the child is vomiting I would expect it to cause significant intoxication in a person of his age. This area must be discussed and the possibility of alcohol induced atrial fibrillation is most certainly within the differential diagnosis, especially due to resolution of symptoms with fluid resuscitation and the history of binge drinking.
• In case two the patient did not have an ECHO to rule out a cardiac defect.
• The discussion should ideally summarise the caffeine content of the different drinks in a graph.
• The discussion must include reasons why these case reports may not be due to caffeine consumption, and how we could further research into caffeine abuse.