Reviewer's report

**Title:** Clinical Characteristics and Outcomes of Patients with Acute Myelogenous Leukemia Admitted to Intensive Care: A Case-Control Study

**Version:** 3  **Date:** 1 September 2010

**Reviewer:** Utz Krug

**Reviewer's report:**

The authors are congratulated for their thorough revision of the manuscript which added much strength to the manuscript. There are only a few minor essential and discretionary reviews left which are summarized below.

1. The authors state that the hazards of death in the AML cases were significantly higher than the AML controls and the ICU controls. However, the reference is stated to be the AML controls, suggesting that both populations (AML cases and ICU controls) were compared to ICU controls. Please confirm that the HR of 1.67 (95% CI, 1.1 - 2.55) stated in the abstract is the HR of AML cases compared to ICU controls (and not ICU controls compared to AML controls). If this is the case, table 5 should be changed accordingly stating 1. the HR of AML cases compared to AML controls and 2. the HR of AML cases compared to ICU controls. In addition, the text (results page 11) states only one HR for two comparisons, showing up in table 5 as the HR of the comparison of AML cases vs AML controls. Since this message is also part of the key messages, this might also be changed accordingly.

2. Since ref. 16 has been introduced, the part of the introduction needs to be updated (p. 4, change the sentence starting with 'Only three studies' to 'only four studies' and update the following sentences accordingly.

3. Results (p. 10, demographic, clinical and diagnostic characteristics of AML) and Table 1: The text states that 'Co-morbid illness was more common in ICU controls when...', whereas table 1 states >90% of ICU controls having 0 or 1 comorbidity compared to much lower fraction in the AML cases and controls. Please check.

4. One spelling error: '...while in ICU HAS higher survival' (p. 12) change to: '...while in ICU HAD...'

5. Discussion, p. 15: It is stated that the adjusted risk of death remains higher in the AML cases during follow-up. However, the Kaplan-Meier plot (figure 1) suggests that at least the curves of AML cases and AML controls are running parallel from app. day 50 on. To detect a persistent worse prognosis after ICU discharge, I suggest an additional landmark survival analysis from the time of ICU discharge of the patients surviving the ICU stay.

Discretionary revision:
6. I'd change the Hypothesis stated on page 16: 'These observations would suggest that prognosis for AML patients receiving active chemotherapy may be better than perceived'. Hypothetically, the reason for better survival of pts receiving active therapy might have also been a selection of only patients with a good prognosis being offered chemotherapy by their treating physician.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests