Author's response to reviews

Title: Preoperative insulin resistance reduces complications after hip replacement surgery in non-diabetic patients

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Response to reviewers
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Preoperative insulin resistance reduces complications after hip replacement surgery in non-diabetic patients (MS 1793042319536770) submitted to BMC Anesthesiology.

Reviewer 1 is satisfied with the manuscript and the revision made.

Author’s response: There is no need to make any changes in the manuscript as a result of the response from this reviewer.

Reviewer 2 ”still has concerns about the methods used in this paper and the conclusions”.

Author’s response: It is unclear what the reviewer wants to have changed. A number of clarifications have nevertheless been done, in particular explaining how the data were calculated and how insulin resistant patients were distinguished from those who were not insulin resistant. All changes in the manuscript are highlighted by red colour. Major changes include:

1. The following text has been added/refined the METHODS section:

"Based on a previous study in volunteers [2], the relationship between the rate of glucose uptake \( M_{bw} \) given by the clamp method and \( V_d, CL \) and \( AUC_{ins} \) given by the IVGTT after an intravenous injection of 0.3 g/kg of glucose can be expressed by the following regression equation:

\[
M_{bw} = 45.4 \times 10^{log\left(\frac{CL \cdot 10^6}{V_d \cdot AUC_{ins}}\right)}
\]

The glucose uptake given by the clamp, which is usually denoted \( M \), was corrected for body weight \( (M_{bw}) \) to account for the fact that a heavy person is likely to take up relatively more glucose at maximum insulin stimulation. Moreover, the bolus dose of glucose given as part of the IVGTT was adjusted for body weight. The reader should note that a low \( M_{bw} \) implies insulin resistance.

In the previous study in volunteers, the hyperinsulinemic glucose clamp yielded values of \( M_{bw} \) ranging from 9 to 62 \( \mu \)mol/min/kg [2] which the equation cited above could predict from an IVGTT with 25–75\(^{\text{th}}\) percentiles of −10\% and +16\% and a linearity (correlation coefficient) of 0.80."

2. As this reviewer has previously been dissatisfied with our clinical method of quantifying blood loss. The following passage has therefore been added to the DISCUSSION section:

"Limitations include that surgical hemorrhage was assessed clinically, i.e. as the summary of the measured volume in suction bottles and visually estimated amounts present on swabs and dressings. With this approach blood loss did not differ depending on the degree insulin resistance, but it is possible that a difference had been disclosed if the lost blood had been washed out from the swabs by saline and the amount measured by a photometer.”