Author's response to reviews

Title: A feasibility study of 60 consecutive patients operated for unstable thoracic cage compared to historical controls treated in a mechanical ventilator

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Author's response to reviews: see over
Comments to reviewers.
A prospective feasibility study .........

Hans Granhed 12.08.2014

The operated group is prospective and consecutive with no dropouts. This is the strengths in this article. The historical controls come from a trauma database. We have not controlled the journals (retrospective = not reliable). So what data can be reliable? We do believe that ISS can be trusted and also time in ventilator. Age and gender of the historical controls are other variables that can be trusted. Data from mechanism of injury, early death and other concomitant injuries are not good enough to compare to the prospective series. The historical series however are from the same area the years just prior to the era of surgical treatment. This makes it very likely to be comparable in most variables.

A large true prospective randomise study is needed. I our hospital we cannot do that anymore because of our surgical clinical “believes” and sometimes because of colleagues from ICU who propose surgical treatment for some not operated “flail-patients” ending up at ICU.

The purpose of the study was to give us primary information about the risks and possible benefits of modern surgical treatment. Our data has helped us to start up a multicentre case control study, after discussion with our ethical committee.

Our thoughts are not to draw any conclusions beyond what is possible from these “mixed series”

Kevin Mani.
I have added a figure (2) showing the distribution of Gender and treatment compared to ISS. The distribution is shown as percent grouped in ISS. It shows that we have operated a larger proportion of patients with ISS between 16 and 15. There is no significant difference probably because the amount of patients when grouped are too small. There is no significant difference between the two groups, a problem that I have covered in the discussion.

I have taken away “compared to historical controls treated in a mechanical ventilator”, from the title.

I do not think that it is possible to do multivariate analyses on a material with such a quality as the “historical controls”

The quality of the historical material does not cover data that can answer the question, to what extent “aggressive intrapleural surgery” reduced infection. We do not think that our surgery to the lungs should be called aggressive. What we did was to debride lacerated lung tissue in the same way that debridement of lacerated tissue should be debrided in other parts of the body, to avoid infection. Aggressive is taken out of the text.
During the first year of surgical treatment we did a small comparison of direct costs for the hospital which is covered in ref. 12. I have added that in methods results and discussion.

The producing companies are spelled out.

In figure 4 we have performed a t-test between the two groups. P<0.001. The figure comes from percent of extubated patients from each group on day 1, 2, 3…..

The abbreviations are taken away.

Spelling is corrected

**Timothy Moore**

Stable or not stable is a good question. I agree that three segmental fractures should be used to define flail chest. This is a clear definition but it depends on radiology. When you start to explore this field you soon find that plain films in two directions does not find all the flail segments. Then you start to believe in CT with 3-D reconstructions. Next step is to compare your open surgical judgement with CT and you find that even 3-Ds are not the full truth. The reconstruction can fail and depends probably still on the radiologist and performance of the computer. So far we use clinical judgement and patients needing respirator or those we believe need it the coming 3 days. Then we scrutinise the 3-Ds again and discuss with the patient. How many levels can be seen I table 2.

The IM nails or splints does not need so much exploration, but does not give as much stability as the plates. We have used them when we could not explore enough specially under the scapula. We try to avoid them when we deal with adlatus dislocations.

Yes we think that it is possible that there is a problem with the difference in ISS and that it can be the effect of low power. The problem can be seen in the new fig.2. And will be further discussed.

We have done some changes in the text about the intrapleural surgery. We do believe that the patients benefit from debridement of lacerated lung tissue, which probably is a good culture medium for future infections. This question can maybe be invested in the future.

We had to perform a small cost analysis to convince the hospital that we did not increase the costs. This is included in this revision. The cost for three extra operations can not be found in the files.

There is a disclosure in page 9, but we have widened it to instruments and techniques.

Göteborg Sweden 12 August 2014
Hans Granhed