Author’s response to reviews

Title: Comparison of functional metacarpal splint and ulnar gutter splint in the treatment of fifth metacarpal neck fractures: A prospective comparative study

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Reviewer 1:

POINTS TO IMPROVE

* In the results section of the Abstract and the paper, state all results as whole numbers without decimal points. The sample size is small; the source data with regards to angulation
  -The decimal values in the abstract and text were removed according to reviewer’s suggestion.

* Explain the provenance of the power analysis (lines 112-3)
  -The power analysis was made based on a previous study by Parmaksizoglu et al. comparing different treatment methods in the treatment of 5th metacarpal neck fractures. The related reference was added to the text at Line 113 in Methods section.

* The Methods and Discussion is far too long; they can be substantially shortened without diluting their integrity
The Methods and Discussion were shortened according to reviewer’s suggestion.

POINTS THAT CANNOT BE IMPROVED

* There is no control group with "no splint" at all. This is a major flaw that must be acknowledged. The Introduction and Discussion should describe evidence for no splinting.

-Although there are many studies reporting satisfactory clinical results by soft wrap application without reduction, several also raised some cosmetic concerns. One of the largest randomized study comparing soft wrap with reduction and casting by van Aaken et al. (1) found similar clinical outcomes but they stressed out that the patient must be willing to accept the loss of the “knuckle” with this treatment method. Before starting the study, we, intentionally, did not include a “no splint” group to not to raise any cosmetic concerns for our patients. Although we agree that it would be valuable to have a “no splint” group in our study, we think it shouldn’t be considered as a major flaw, since majority of the similar studies compared two different methods whether it is splint vs. bandage, or splint vs. splint without a “no splint” control group. (2, 3, 4, 5, etc.) We added some evidence from the literature for “no splint” method to Introduction (Line: 97-99) and Discussion (Line: 247-252, 269-272) section according to reviewer’s suggestion.


* There are no inclusion criteria beyond "isolated and closed neck fractures" (line 117). An acceptable angulation after reduction was deemed to be 40 degrees (lines 123). So surely the inclusion criterion was >40 degrees? If so this must be stated; if not then the study is invalidated since subjects may have been satisfactory before they even entered the study.
* My suspicion here is confirmed in Table 2 where the mean fracture angulation prior to manipulation was about 31 degrees. This appears to me to be a fatal flaw. Should not all patients with an angulation less than 40 degrees be excluded. If so then the sample size will be insufficient. If this is so then the study is fatally flawed, especially when considering that there was no "no splint" group

- The detailed initial fracture angulations and ranges were given at Table 2. Our aim was to evaluate “the maintenance of initial reduction” throughout the 1st and 6th month follow-ups, rather than the angulation values. Therefore, there was no inclusion criteria as “>40 degrees angulation” just like most of the other studies (1, 2, 3, etc.) evaluating 5th metacarpal neck fractures. For example, van Aaken et al.(1) compared soft wrap to reduction & casting and their patient groups included patients with initial fracture angulations between 13-53 angles, similar to our patient groups. Muller et al.(3) included patients with angulations between 15-70 degrees. Therefore we think it’s not fair to call it a fatal flaw
or even a flaw, since the most of the studies used the same methodology. We excluded the patients with more than 40 degrees angulation to exclude the possibility of instability or fractures necessitating surgery affecting the radiological and functional outcomes, like some other similar studies (2) did.

