Reviewer's report

Title: Is Elevated Red Cell Distribution Width a Prognostic Predictor in Adult Patients with Community Acquired Pneumonia?

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Reviewer: Kate Adams

Reviewer's report:

In this retrospective study Braun et al analysed a large database of patients presenting with community acquired pneumonia (CAP) for risk factors for 90 day mortality and complicated hospital admissions. Their specific aim was to investigate the prognostic predictive value of RDW among CAP patients. There have previously been several studies showing an association of RDW with various cardiorespiratory diagnoses. Over the last year there have been a number of studies looking at the value of RDW as a prognostic marker in various infections and severe sepsis and this adds some further evidence to this area.

The main strength of this study is the large numbers involved. The main weakness is that it’s a retrospective study from a database and there is recognition from the authors of this. I found some of the results confusing and some of the statistics were difficult. This meant that it took a couple of reads to fully appreciate. Whilst the graphs make a compelling argument for elevated RDW being a strong prognostic factor, close inspection of the univariate and multivariate analyses shows that it isn’t as impressive as some of the more standard indicators and therefore I have my doubts as to how much extra it actually adds and I think the conclusions are somewhat over stated. Overall however, I think it is worth publishing but would suggest the following:

Discretionary revisions:

I think both the background section and the discussion would benefit from some exploration in to why a raised RDW may be associated with complicated admissions and or mortality. Some of the previously published studies have made some suggestions and it would certainly be worth referencing these or better still building on them. A plausible reason as to why increased RDW may be associated with an increase in mortality would strengthen the argument for doing this study in the first place and add weight to the conclusions.

It would also be useful in either the background or the methods section to have a bit more about database. There is reference to it being the Prometheus Rambam health care centre integrated computer system. Is this a primary or secondary or tertiary care centre? What is the catchment area for the patients? Are these patients within the private or public health system? This is all important information that can’t be gleaned from the demographic information provided and is important in relation to how this study may translate to other populations.

It would also be worth putting a few words of explanation as to what the Charlson
score is as not all readers will be familiar with this.  

It struck me as a little odd that a cut off of p<0.1 was chosen as the cut off level of significance in the univariate analysis to select variables for the multivariate analyses. This seems quite a low threshold given that p values of <0.1 are not generally regarded as being significant. It may be that there was good reason why this was chosen but if so I think this should be outlined.

Minor essential revisions:

In the background the last line of first paragraph would read better if it was phrased as ....in an attempt to determine who is at risk of an adverse outcome...

In the methods section at the end of the fourth paragraph please add if these were the vital signs recorded on admission. At the moment the sentence just states the vital signs of the patients were noted.

In the results section in the first line under the title Univariate analysis of complicated hospitalisations and 90 day mortality, the figures 956 patients (28.1%) are quoted as being shown in table 1a. However, these figures don’t actually appear in table 1a – the box where they should be is blank.

In the section headed Multivariate analysis of complicated hospitalisations in the third sentence there needs to be a space between BUN >30mg/dl and the and which follows.

In the third paragraph of the discussion the spelling of hypernatraemia needs to be corrected. In the sixth paragraph it should read In concordance rather than In concordant. I would suggest that the last sentence of the same paragraph is changed to read .....both a short and long term association with RDW rather than showed both short and long term effects of RDW as I don’t think there is evidence to say this is a direct effect of an elevated RDW.

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

Quality of written English:Acceptable

Statistical review:Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests.