Reviewer's report

Title: Fluorine-18 fluoro-2-deoxy-D-glucose positron emission tomography/computed tomography scan contributes to the diagnosis and management of brucellar spondylodiskitis.

Version: 2 Date: 26 November 2012

Reviewer: Charito Love

Reviewer's report:

Major Compulsory Revisions:

1. Title appropriate for undertaking.

2. Under imaging studies: The first sentence should be “Clinical diagnosis of spondylitis was initially established by MRI”. The term “confirmed” is reserved for histopathologically established final diagnosis.

Under imaging studies- FDG PET/CT protocol: The diagnostic criteria for a positive study were not clearly defined. Is the increased activity in the vertebral body, disc space, or both, etc? How was the region of interest (ROI) drawn for SUV measurement in those with only spinal involvement and in those with paraspinal soft tissue extensions? Why was spinal activity compared with surrounding tissues and not with uninvolved vertebral body? And which surrounding tissue was the activity compared with? In those patients with anemia (n= 3), did you find generally increased activity in the spine and elsewhere due to reactive marrow hyperplasia? What corresponding changes, if any, were present on the CT portion of the PET/CT?

In those with additional sites of suspected infection on FDG/PET, did management plan change?

Under imaging studies- treatment and follow up: How was the ROI drawn on the follow up FDG PET studies for SUV measurement? Did the authors use the same ROI as in the baseline study or was it confined to residual abnormal activity?

Since this is a prospective study, accurate definition of methodology is expected.

3. Under results: In those patients who had normal SAT results (n= 4) and underwent biopsy, what were the results of the biopsy? These biopsy results offer the gold standard for final diagnoses of brucellar spondylitis; and in fact, can be elaborated to point out why FDG PET works just as well for diagnosing spinal osteomyelitis (in addition to showing additional sites and abnormalities). Patient 5 would have been a good reference point as both MRI and FDG PET were positive despite normal SAT results; this patient also showed resolution of diagnostic abnormalities on follow up.
L5/S1 site as due to infection in patient 1 is a little uncertain unless this is one that was associated with paravertebral soft tissue component that improved with therapy. The minimal change in SUV with residual abnormality on both MRI and FDG PET on follow up can suggest that this site may be due to degenerative changes. The same can be said for L4/L5 site in patient 10. Although Katrin Stumpe (reference 19) found no abnormal end plate activity in patients with degenerative disc disease in her series, Rosen et al (J Nucl Med 2006; 47: 1274-1280) found increased disc activity in those with degenerative changes (this study was mentioned in your reference #9 where Katrin is one of the co-authors). In contrast, L4/L5 lesion in patient 4 showed significant SUV decline and improvement in distribution of abnormal activity and hence much more acceptable to be sites of possible infection.

Under conclusion: It should be pointed out that MRI remains the imaging procedure of choice for assessment of therapy. (With continuing increased FDG activity in those with clinical evidence of resolution, FDG PET may be useful in surveillance for reactivation of “latent infection” ? as suggested by authors).

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

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.