Reviewer's report

Title: Role of Inflammatory Markers in Takayasu Arteritis Disease Monitoring: "All that Glitters is not Gold"

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Reviewer: Tristan Mirault

Reviewer's report:

The case report reported here by O'Connor et al. is about a young 24-year-old woman diagnosed with a Takayasu Arteritis (TA). After 5 years of unsatisfying follow-up due to the noncompliance of the patient she declared a stroke. The case is well written and the imaging really accurate. “all that glitters is not gold” is the subtitle of this article, nevertheless the authors did not manage to pull it off.

Major comments

The authors emphasize on the non-reliability of the serum inflammatory profile to measure TA activity, especially in the case reported.

First of all the presentation is not convincing at all on the fact that the patient presented a low level of inflammatory markers before the time the stroke occurred. The Figure 1 is not fair and is confounding: the time scale is not respected and a line chart should be used because of the sparse data. I retrieved data from the chart and build a new chart, which represents more accurately what happened during the years the patient did not stick to the follow-up and the drugs prescribed. The inflammatory markers seemed to have stayed at a high flat level during years. The worsening of the stenosis, of her lesions is consequently not such a surprise.

Secondly the discussion on the non-reliability of inflammatory biomarkers in TA points out a very well known issue in TA which share this with lots of other diseases: Behçet’s disease, Crohn’s disease, Systemic Lupus Erythematosus, multiple sclerosis… This inflammatory diseases require a body of evidence at each step of the disease: diagnosis, activity, flare, remission... based on patient’s reported symptoms, clinical examination, biological markers, imaging exams. None of these can support alone the accurate evaluation of such diseases.

The main axis of the discussion is off the mark whereas the case-report is an interesting case report regarding the stroke issue. Authors should emphasize on this, especially for the BMC Neurol. Journal. The discussion should focuses on the stroke mechanism in TA. First of all this is not such a frequent condition in TA regarding to the high frequency of the supra-aortic trunks involvement in that disease. Secondly, the mechanism of stroke in TA is most often a low-flow infarct, whereas in that case there is a thrombosis of MCA probably an embolism from the left carotid occlusion (internal carotid occlusion?, common carotid artery for sure). To conclude, authors are struck by the labyrinthine supply of the cerebral blood flow with lots of collateral and retrograde flow compensating. This
is important to publish these remarkable features and discuss regards to that
that carotid stenosis in TA should not be managed like atheromatous carotid
stenosis and particularly emphasize on the less necessity to resort to surgical
options like endarterectomy or bypass.

Minor comments
Page 3: Besides clinical data, inflammatory markers and imaging … are
commonly used to monitor disease progression.
Invasive adjective for CT is not really accurate. Use radiation diagnostic
technique.
« TA is generally monitored closely because relapses are often unpredictable
and dangerous. Inflammatory markers such as erythrocyte sedimentation rate
(ESR) and C – reactive protein (CRP) are commonly used to monitor disease
progression during remission due to their noninvasive nature and affordable cost,
while more invasive testing such as CT angiography (CTA) is reserved for
patients presenting with active disease. However, relying on the inflammatory
marker ESR to distinguish active from inactive TA yields only a 72% sensitivity
and a 56% specificity predictor value [6]. »

Page 4: The arterial blood pressure is never mentioned throughout the
manuscript. Please precise how it was taken if data are available: right or left
upper limb, ankles?
« Over the next several weeks the patient continued to experience worsening
headaches unrelieved by over the counter pain medications. »

Page 5: How was the left internal carotid artery?
« CTA of the head and neck demonstrated mural thickening of the aortic arch
that was consistent with previous images. There was also complete occlusion of
the left common carotid artery at its origin (Figure 3) with collateral flow arising
from the right anterior circulation via the circle of Willis and leptomeningeal
collaterals. In addition, there is complete occlusion of a short segment of the
MCA, just past its bifurcation (Figure 4A) and evidence of flow through the
anterior and posterior communicating arteries is absent upon imaging (Figure 4).
These findings would explain the CT perfusion abnormalities of delay in transit
time with decreased cerebral blood flow and cerebral blood volume, consistent
with the left MCA infarct, including the left basal ganglia (Figure 5). »

Page 5: When were started steroids? After of before the fifth day. ESR and CRP
could have been normalized by the pulse steroids.
On the fifth day of admission repeat ESR was 6 mm/hr and CRP was within
normal limits at 3.4 mg/L (Figure 1, Post-CVA). The patient was started on pulse
steroids.

Page 7: Digital subtraction angiography is not considered the gold standard
anymore. CT and MRI are the more reliable imaging tools for TA diagnostic and
follow-up.
« Angiography, considered the gold standard imaging method for diagnosis, can be used for both screening and treatment. »

Page 7: What do you mean by High risk of complications?
« CTA allows evaluation of the vessel wall and lumen in the aorta and large vessels and can provide information concerning end organ ischemia. However, it carries a higher risk of complications, is invasive, includes exposure to ionizing radiation, and is impractical for frequent monitoring [7, 23]. »

Page 8: 3T is 3 Tesla
« However, MRI is time consuming, expensive, can be affected by movement artifact, cannot be performed in patients with ferromagnetic implants, and may require 3T strength in order to visualize smaller vessels [7]. »

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