Moxafrica Report: The Big One!

by Merlin Young

This report is something of a "stop-the-presses" call. Mizutani Sensei has kindly allowed us to submit it a bit late and we are very grateful for this, given what we now have to share.

With so much uncertainty and so much at stake we've tended to find reassurance from any auspicious signs we find along the way. Well the first of three days of meetings this week with the Makerere University research team in Kampala (including with the biostatistician who has been analysing all of the data) coincided with the first day of the Year of the Fire Monkey. Since fire has such an obvious connection with moxa, and since monkeys have such an important connection with Africa (but are also so tricky and unpredictable) we dared to hope that the day for the first meeting might be an especially important one.

Vervet monkey in Kampala

This date hadn't been our choice at all, however. The trip had been rushed forward so that I would be safely out of the country before the anticipated unrest begins – this is being predicted by almost everyone I spoke to during this short visit. The coming week sees national elections happening – when 30 years of political stability may literally go up in smoke because of a president who is intent on staying in control when the majority of his people want change. The Makerere research team wanted to make sure I wouldn't be exposed to the risks of violence on the street or maybe missing my flight because of tires burning on the only road to the airport. By the time this report is published I'm hoping that these forebodings will prove to have been ill founded, but I worry that they may not be. Uganda can so easily find a special place in your heart: its people are the friendliest and most polite people you might ever meet, but their country is still terribly poor and their daily struggles are immense. They certainly don't deserve more problems on top of the ones they already face daily.

But right now my business is to share what we've found from statistically analysing the data from the RCT of 180 patients, half on standard TB treatment, the other half on TB treatment plus daily self-administered moxa at ST-36. (Of the 180 TB patients, 49 were also HIV positive and these were fortuitously almost equally randomised between the two treatment groups). So here's what we've found in terms of "statistically significant" findings:

1. Moxa significantly improves sero-conversion to "sputum-negative" status in the first month of TB treatment. But there was also a significant positive difference in the last four months of treatment in those few patients who had still not sero-converted by that time (i.e. significantly fewer in the moxa group than in the non-moxa group). Both are very exciting findings given what they imply for drug-resistant cases (when treatment takes four times longer and the success rates are nearly half what they are for "normal" TB). With the benefit of this data we can now seriously suggest that similar findings could be game changing for treating drug-resistant cases.

2. In HIV co-infected cases this response was slower but still significant.

3. Moxa appears to significantly improve adherence to TB drug therapy. (We have to add that we suspect that this may be a psychological effect of some kind, or possibly an effect of greater attention from the clinical staff at the health centre. The study doctor was blinded to the randomisations, but the study nurses couldn't be and we know that they were as keen as we were to see good results. Maybe they couldn't but try to help to see this happen by being especially attentive!).

4. Moxa promotes a significant improvement in CD4 count in both HIV-positive and negative TB cases compared with those in the non-moxa group. CD4 are the immune cells that crash with HIV/AIDS and are the primary markers to indicate advancement of disease.

5. With the HIV patients split out from the whole cohort and then statistically analysed, these differences in CD4 count in the HIV-positive moxa patients were found to be more significant than it was in the whole cohort. The effects of the moxa do seem to come through a little more slowly, however (which may not be so surprising since with HIV the immune response is already more dulled). We should add here that we remain a little cautious about this finding because the data doesn't show when patients started their HIV anti-retroviral therapy (whether it was shortly before TB treatment beginning or a long time before). It's possible this could make a difference (in fact it might even show this finding to be more significant) but the team reckons that this information is recoverable from the piles of existing files so this uncertainty should be clarified in the course of the next few weeks.

6. There was significantly more fever at four months occurring among non-moxa patients than the moxa group (we're not sure why this occurred or whether it means anything).

7. The moxa group recorded significantly less weight gain compared with the non-moxa group. (This surprised us, though again we're not sure yet what this means. It was certainly not something we expected given what we were told by both patients and health workers in the pilot studies.)

8. Moxa promotes a rise in hemoglobin levels. This wasn't something we were particularly looking for. We're still not sure what sort of significance this may have but are pretty confident that it's positive. We intend to find out more from the existing literature in Japan, and also by learning more about the patterns of haemoglobin changes that normally occur during TB treatment.

9. With the HIV patients split out and analysed as a sub-group, the differences in hemoglobin levels are more significant in the moxa patients than in the non-moxa.

10. One early finding appears to have disappeared in this analysis, at least temporarily. This finding related to a reduction of one of the key side effects from the TB drugs (joint pain). According to an earlier preliminary analysis of the first 90 patients by the study doctor, this side effect was experienced significantly less in the moxa patients. When a broad analysis was made of all the 180 patients after completion, however, there were no apparent differences in the data. This related specifically to "musculoskeletal" as a data category, however, and not specifically to "joint pain." This discrepancy is going to be reviewed in the hope of picking out the joint pain notifications retrospectively. If it's still there we would like to identify it!

11. We have no x-ray analyses yet. The study doctor is sure that they will show some interesting findings given the other data, which would further indicate an improved recovery response. He believes that this will make the findings more scientifically robust (more so even than the blood data which we know can easily temporarily alter depending on the time of the day or on stress levels).

Discussing the findings at Makerere University. From left to right: *Frank Mabiru (biostatistician), Dr. Ibanda Hood (study doctor) and Professor Paul Waako (leader of the research team).*

12. The Karnofsky "well-being" scores (which the professor put a lot of store by) have turned out to have been a let down – the recorded differences ended up being inconsequential, possibly because it's not sensitive enough a measure to be suitable for ambulatory TB outpatients, and is actually more suitable for measuring recoveries in hospitalised patients with more advanced disease.

Two more important meetings happened on the third day. One was with the manager of Uganda's National TB Program. The other was with the senior doctor of the national TB referral hospital's MDR-TB department. In both meetings our findings were shared and received extremely positively.

The professor, Paul Waako, is now 100% behind the idea of initiating the next steps, developing a study of the effects of moxa on MDR patients, given the data that we now have. Uncovering how MDR-TB patients respond to moxa treatment has always been our goal given the risks of the disease. What's reassuring is that we know that we have some moxa dosage "in the bag" if we need it: the treatment used in this study was deliberately as minimal as we dared because we needed a good completion rate. In truth, the completion rate has been lower than we'd hoped, but we're still sure we have enough data to seriously raise some eyebrows. We know that TB is a complex disease that never behaves as might be hoped, often for social reasons as much as for biomedical ones. We're also sure that the next steps will be more challenging, more ethically complex, and also more expensive. It may need to be more flexible as well, but it can still be reasonably modelled off what's already been achieved. So we may need to be thinking like monkeys!

The team's intention is now to write and submit two papers to medical journals, completing the manuscripts in two to three months (i.e. by April). We're keen to see this submission being principally authored by African clinicians and academics, but we are being invited to be involved, especially to polish the text and to identify the optimum journals for publication.

By mid-March we plan to have a collectively developed a concept paper detailing the best way forwards, the intention being to get started on the next phase of research as quickly as possible.

We also intend to schedule a public presentation in Kampala in May with the Uganda Minister of Health present (though given the uncertain political situation we may unfortunately not know who to invite for a while). We would particularly like to see MSF (médecins sans frontiers) Uganda and PIH (Partners in Health) Rwanda come and hear about these findings because they are experts at the front line of containing MDR-TB. And we especially want to see some moxa and HIV research experts come from Japan. We'll target some academics from the UK and US as well. What we particularly relish as a really exciting prospect, though, is a Japanese-Ugandan collaboration in the next phase of research.

There may yet be a lot to add to this hurried summary. Right now the most important thing, though, is to get this report off to *NAJOM* in BC, and enjoy some chunks of fresh sweet Ugandan pineapple and a Nile beer!

But we must also voice our immense gratitude for the support and encouragement that has been personally afforded us by Mizutani Sensei. Junji, we hope that you (and your wonderful editorial team) will feel as rewarded as we do by this report, because you have had constant faith in our endeavours (which at times have felt very shaky indeed at our end!). We feel humbled by this, not least because sometimes we feared we might ultimately disappoint you.

So may the year of the Fire Monkey continue as it's just begun, and may the tricky little beast be good to all of us!

Merlin Young *graduated from the College of Traditional Acupuncture (UK) in 1999 and since then has been intensively studying Japanese acupuncture and moxibustion. Following his exposure to the work of Dr. Paul Farmer in Haiti and Peru, he became particularly interested in the subject of drug resistance in tuberculosis and its connections to the politics of global medicine. In 2008, he co-founded the Moxafrica charity to systematically investigate whether Japanese-style direct moxa techniques might be able to combat TB, drug-resistant TB, and even TB in combination with HIV/AIDS in the developing world.*