Collecting clinical experience of homeopathic support in COVID-19

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At this moment we collected 146 cases. Now we can show why larger numbers matter by comparing this data with 69 cases at 13th April. Meanwhile, we also adapted the data collection based on evaluation of incoming data. We noticed some symptoms that occur more frequently and added those to the list of symptoms to check. The database of the American Institute of Homeopathy (AIH)(Peter Gold), our main supplier of data, now shows a checklist for symptoms like 'fatigue/prostration/exhaustion', 'dry or productive cough', 'headache', 'diarrhoea', 'slow or sudden onset', 'loss of taste and/or smell', etcetera. With this change we altered the methodology for these symptoms; they were now checked systematically. We will show that this also has some influence on our data.

By collecting data we can increase our awareness of possible bias by looking at variation. We can now resolve some causes of variation and our data become more precise. This precision is especially relevant for more common symptoms. In the 'old' repertory we see bold entries for all most frequently used medicines. An example. If we have 8 cases of *Arsenicum (ars)*, 26 cases of *Bryonia (bry)* and 10 cases of *Gelsemium (gels)* with 'dry cough', this would render bold entries for all three medicines for this symptom and we see no distinction between these medicines. Calculating prevalence, or better still likelihood ratio (LR), we get the real prognostic value of 'dry cough': for *ars* LR=0.84, for *bry* LR=1.45 and for *Gels* LR=0.86. Now we see that *bry* would be a better choice, but this symptom is not enough for a certain prescription, as we already knew about common symptoms.

More precision in our symptom rubrics also allow more precise combination of symptoms. In this newsletter we will show how a combination of three common symptoms can make a big difference.

Systematic data collection

In the beginning of this project a group of practitioners noticed a 'slow onset of complaints' in patients responding well to *bry*. By the 13th April 2020, with 69 collected cases, eight out of 20 (40%) *bry* showed this symptom. This renders LR=2.45, 95%CI 1.068 – 5.622 (for explanation, see below). At that time we asked our observers to check for fast or slow symptom development in every new patient, and this item was implemented in the AIH spreadsheet form. At this moment, with 146 cases, this has changed: for 'slow onset of disease' LR(*bry)*=1.157, 95%CI 0.689 – 1.941.

What happened? Possibly some observers did not have the symptom 'sudden/slow onset' in mind before, especially for other medicines than *bry*: availability bias. This was corrected by the specific question to check this symptom. Another explanation could be statistical uncertainty, see below. A third possibility, however is the vagueness of this symptom; we were not yet able to specify 'slow onset'.

Statistical certainty

Statistical certainty is best expressed by confidence interval (CI). A 95% CI is the range of values where you expect 95% of a frequent repetition of similar observations to fit in. If the 95%CI interval contains unity (e.g. 95%CI 0.99 – 2.45), the finding is generally considered not to be statistically significant. However, this 95% assumption is arbitrary, for many practical applications in medicine a CI of, say, 80% might also be adequate. This is because medical decisions are often made under uncertainty. If you suspect with 50% certainty that a patient has appendicitis, you will refer him to a surgeon. Waiting for 95% certainty would cost many lives. Most medical diagnoses do not reach 80% certainty. The same goes for certainty about the curative effect of a medicine in an individual patient. Table 1 shows most LR values of this moment that have statistical significance.

Table 1: Statistically significant LR values in a population of 146 cases: 19 ars, 41 bry and 23 gels.

Symptom	**Medicine**	**LR**	**95% confidence interval**
fatigue	gels	1.56	1.216 - 2.009
dry cough	bry	1.45	1.053 - 1.989
diarrhoea	ars	1.98	1.061 - 3.698
chill	gels	2.67	1.446 - 4.945
anxiety	ars	3.60	1.646 - 7.869
dry mouth	bry	2.88	1.193 - 6.955
thirst	ars	5.85	2.396 - 14.278
thirstless	gels	2.67	1.007 - 7.102
back pain	bry	5.12	1.630 - 16.090
chest pain < cough	bry	3.59	1.206 - 10.658
cough < deep respiration	bry	5.98	1.623 - 22.003

With larger samples CIs get smaller and we get more statistically significant LR values. Table 2 shows some LR values of the 69 cases dataset of the 13th of April 2020 to illustrate this.

Table 2: LRs and 95% confidence intervals of three symptoms in a population of 69 cases, 8 ars, 20 bry and 11 gels

Symptom	**Medicine**	**LR**	**95% confidence interval**
fatigue	gels	1.506	1.138 – 1.993
dry cough	bry	1.419	0.835 – 2.410
diarrhoea	ars	5.719	1.554 – 21.046

Table 2 also shows something else. We see a higher LR value for *ars* and 'diarrhoea', with a large CI. With a small sample size, in this case 8 *ars* cases, we see large variation with higher and lower values than with a larger sample size. However, the large LR value for *ars* and 'diarrhoea' might also be caused by **confirmation bias**: we expect gastro-intestinal symptoms if we think of *ars*. Confirmation bias leads to over-estimating LR values and also becomes less if we check the symptom systematically in every patient.

Update COVID-19 mini-repertory

Based on 146 cases, 19 *ars*, 41 *bry* and 23 *gels,* we get a new mini-repertory for COVID-19 cases with less statistical uncertainty and less bias. Contrary to the previous mini-repertory we removed the

symptom ‘slow onset’ because this symptom no longer differentiates between the three medicines and we are now unsure about this symptom because we did not define it well enough. We also concentrated on the three medicines with largest sample size, responsible for 57% of the successful prescriptions for reasons we explain below.

Table 3: mini repertory for three medicines for COVID-19 treatment.

Symptoms	LRars	LRbry	LRgels
n total=146	n=19	n=41	n=23
fatigue	1.01	0.75	1.56
dry cough	0.84	1.45	0.86
dyspnea	0.74	1.32	0.47
headache	1.00	1.50	1.13
fever	0.51	1.28	1.46
diarrhoea	1.98	1.02	1.11
throat pain	0.99	1.41	1.56
chill	1.34	1.28	2.67
chest pain	1.06	1.46	0.84
anxiety	3.60	0.85	0.94
dry mouth	2.06	2.88	0.33
thirst	5.85	3.84	0.82
thirstless	0.48	0.93	2.67
nausea	2.67	0.43	1.46
back pain	0.61	5.12	0.49
chest pain < cough	0.61	3.59	1.78
cough < talking	1.49	1.46	
cough < deep respiration	1.67	5.98	

We see mostly moderate LR values, below 3 to 4. This is expected because common symptoms cannot be of great value in homeopathy. We make exceptions for so-called ‘keynote’ symptoms, like ‘anxiety’ for *ars*, but generally we should be careful interpreting LR values >4 in common symptoms. However, this research might show some new keynote symptoms for COVID-19 treatment.

Combining common symptoms

In homeopathy we seldom rely on one symptom only for prescribing a specific medicine. Experienced homeopathic practitioners look at the whole patient, inducing some intuitive preferences for eligible medicines and then they recognise symptoms that confirm or contradict specific medicines. Their background (sometimes sub-conscious) knowledge influences the choice of repertory-rubrics. In this research we obtain more precision in observation and recording of cases, rendering a less biased relationship between symptom and medicines. We now know how frequently each medicine occurs in each medicine population, provided we have enough cases. The sample sizes of *ars*, *bry* and *gels* seem sufficient for a fairly accurate comparison.

This offers the possibility to test if combinations of these symptoms can serve as ‘keynote symptoms’, combinations that are very specific for specific medicines. Let us look at combined LRs

for combinations of three symptoms. Combined LRs are calculated by multiplying individual LRs, see Table 4.

Table 4: combined LR of combinations of three common symptoms.

combinations	LRars	LRbry	LRgels
diarrhoea+chill+anxiety	9.53	1.12	2.79
dry cough+headache+back pain	0.51	11.13	0.47
fatigue+chill+thirstless	0.64	0.89	11.18

We see that the combination of 'diarrhoea', 'chill' and 'anxiety' has a much higher LR for *ars* (LR=9.53) than for *bry* and for *gels*. The same goes for the combination of 'dry cough', 'headache' and 'back pain' for *bry*, and for the combination of 'fatigue', 'chill' and 'thirstless' for *gels*.

To see how much influence these symptom combinations have on the chance that the specific medicines work we apply Bayes' theorem (posterior odds = LR x prior odds). We assume that the prior chance that the medicine works before the symptom combination is know is 10%, see Table 5.

Table 5: posterior chance if specific combinations of symptoms are present with 10% prior chance.

Posterior chance with 10% prior chance	ars	bry	gels
diarrhoea+chill+anxiety	51.4%	11.1%	23.7%
dry cough+headache+back pain	5.4%	55.3%	5.0%
fatigue+chill+thirstless	6.7%	9.0%	55.4%

Table 5 shows that these specific symptom combinations increase the chance of effect for the related medicine from 10% to over 50%.

Discussion

This process of collecting successful COVID-19 cases, combined with periodical analysis, feedback and adjustment of procedure leads to step-by-step improvement of the data by reducing statistical variation and bias. The statistical analysis based on Bayes' theorem renders much more accurate outcome than the present repertory-presentation by typology. Especially more common symptoms, present in many COVID-19 cases, need this increased accuracy.

The increased accuracy offers an interesting new option for homeopathy. Suppose a COVID-19 patient has only rather common symptoms and there is nothing that gives the homeopathic practitioner a specific clue about eligible medicines. In this case it is perfectly possible that a combination of 2-5 symptoms, that are individually hardly specific, turns out to be quite specific for one medicine. A questionnaire of less than 20 symptoms like in Table 3, combined with an algorithm on an electronic device, could produce this suggestion even before the patient enters your consultation room. This offers new opportunities in treatment of patients with few symptoms.

NOTE: we changed the specification of the symptom slow/sudden onset into:

Onset of complaints: note the number of days between the first symptoms and dyspnea or other invalidating symptoms

Resuming requisites for case descriptions

We resume the minimal necessary data for this project. We already had:

- Severity of COVID-19 illness: Mild – Moderate – Severe – critical
- Is COVID-19 confirmed?
- Medicine, with date of first intake
- Number of hours until onset of improvement and/or until absence of fever
- If possible at least 3-5 symptoms that were characteristic for the case
- Pneumonia on X-ray or CAT

Also check:

- Onset of complaints: note the number of days between the first symptoms and dyspnea or other invalidating symptoms
- Fatigue
- Fear/anxiety
- Restlessness
- Fever, chill, or chill alternating with fever
- Thirst
- Pain; where
- Cough dry or moist
- Dyspnea
- Throat pain
- Loss of taste and/or smell
- diarrhoea

The LMHI COVID-19 case collection team
Lex Rutten, Bernardo Merizalde, Robbert van Haselen, Raj Kumar Manchanda, Ashley Ross, Gustavo Cataldi, Altunay Agaoglu, Tiziana di Giampietro, Lefteris Tapakis, Theodore Lilas, Peter Gold, Frederik Schroyens, José Eizayaga