

Plausibility of the implausible: is it possible that ultra-high dilutions ‘without biological activity’ cause adverse effects?

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Dear Editor,

The homeopathic scientific model suffers constant criticism due to employ different assumptions and antagonistic to conventional scientific model, despite constantly develop studies confirming their premises [1-3]. The preferred target of the critics and skeptics rests on the principle of similitude curative (‘like cures like’) and the use of ultra-high dilutions (dynamized medicines).

While the principle of similitude is scientifically grounded in the rebound effect (paradoxical reaction) of conventional drugs [4,5], being recently proposed its therapeutic application by modern pharmacology (‘paradoxical pharmacology’) [6-8], several studies show clinical, biological and physical-chemistry activities of ultra-high dilutions in experimental models [9].

Despite these evidences, many skeptics questioning the ‘plausibility’ of the homeopathic model. Disregarding the biological effect of the homeopathic medicines, they gathered in public squares from different countries with the purpose of ingesting large doses of these ‘implausible’ ultra-high diluted drugs and show that nothing will happen, because they would not have the power to cause adverse events as the conventional drugs. Although they have not notified any disorder after this massive ingestion of dynamized homeopathic medicines, a recent systematic review suggests that they must have suffered serious consequences, as we have suggested in the past. [10]

In order to counteract the widespread idea that homeopathy ‘is safe to use’, Posadzki et al. [11] conducted a systematic review to critically evaluate the evidence regarding the adverse effects (AEs) of homeopathy described in published case reports and case series. In a total of 38 reports analyzed, 30 pertained to direct AEs of homeopathic medicines encompassing 1142 patients submitted to various medicines and forms of treatment (mostly, complex homeopathic medicines in low potencies). Reporting that “in 94.7% of cases the potencies were described as below of the 12^a Centesimal, the point beyond which the likelihood of a single molecule being present in the remedy approaches zero”, the authors claim that “in the majority of cases, the possible mechanism of action involved allergic reactions or ingestion of toxic substances”. With this approach, the authors seek to dismiss the biological effects of ultra-high dilutions, because if they cause AEs would be confirming the plausibility of its possible therapeutic effects. However, toxicological tests are required to affirm that AEs are a consequence of toxic (allergic) effects of the substances or of ‘imponderable’ effects of ultra-high dilutions.

In view of the recent report cited in the review [12] in which a complex homeopathic medicine indicated for treating infant colic (Gali-col Baby, GCB) caused apparent life-threatening events (ALTEs) were described by the National Institutes of Health consensus group in 1986 as “an episode that is frightening to the observer and that is characterized by some combination of apnea (central or occasionally obstructive), color change

(usually cyanotic or pallid but occasionally erythematous or plethoric), a marked change in muscle tone (usually marked limpness), choking or gagging” [13]) in consequence of the ‘toxicity of active ingredients’ (*Citrullus colocynthis*, *Matricaria chamomilla*, *Bryonia alba*, *Nux vomica*, *Veratrum album*, *Magnesia phosphorica* and *Cuprum metallicum* at potencies between 4C and 5C), Oberbaum et al. [14] performed a toxicological study of these components showing that “doses ingested in the GCB series were 10-13 orders of magnitude smaller than those reported to cause toxic reactions in humans” and that “there was poor correlation between symptoms with GCB and toxic profiles of the components”. As alternative explanation, they suggest that “four components (*Veratrum album*, *Cuprum metallicum*, *Bryonia alba* and *Matricaria chamomilla*) have an intermediate to high propensity to produce at least one of the five symptoms that define ALTE, when given in homeopathic dilutions. Two of these (*Veratrum album* and *Cuprum metallicum*) have an intermediate-to-high propensity to produce three of the four possible ALTE symptoms”. The authors conclude that “it is unlikely that the ALTE following ingestion of GCB was a toxic reaction to any of the drug’s component”, proposing the ‘homeopathic theory’ (pathogenetic manifestations) [15] as explanation for this linkage.

In view of these results, it can be inferred that AEs caused by homeopathic medicines at potencies $\geq 6C$ ‘are more closely related to the imponderable effects of ultra-high dilutions than the toxic (allergic) effects of substances’. Accordingly, other case reports cited in that review described serious AEs with potencies of this magnitude, including the occurrence of ‘drug rash with eosinophilia and severe pulmonary involvement’ after using Sedativ PC (complex homeopathic medicine with 6 ingredients in 6CH) [16], and the occurrence of ‘heart disease and bladder cancer’ with a complex homeopathic medicine in very high potencies (*Aconitum napellus*, *Baryta carbonica*, *Cantharis vesicatoria*, *Gambogia*, *Pulsatilla nigricans* and *Rhus toxicodendron* at 1000c, M or 10M potencies) [17], discarding any influence of ‘toxicity of substances’.

Similarly, in a systematic review on information regarding adverse effects of homeopathic medicines including 19 reports of clinical trials, 19 case (or case series) reports and 15 homeopathic pathogenetic trials, Dantas and Rampes [18] concluded that “the mean incidence of AEs of homeopathic medicines (ultra-high dilutions) was greater than placebo (9.4/6.1) in controlled clinical trials”, including mostly headaches, tiredness, skin eruptions, dizziness, bowel dysfunction such as diarrhea or loose stools and, more frequently, aggravations of symptoms following the administration of homeopathic medicines.

Countering the false adage that “if homeopathic medicines do not do well, evil also do not do”, the evidence of the manifestations of serious AEs with the inappropriate use of complex homeopathic medicines and/or very low potencies are an alert to the need to achieve a ‘good homeopathic clinical practice’, in conformity with the fundamentals of ‘therapeutic similitude’ according to the ‘pathogenetic experimentation’ and the ‘individualized medicines’. On the other hand, allows observation of biological effect of ultra-high diluted substances, reiterating the scientific validity of the use of the ‘dynamized medicines’.

References

- [1] Proceedings of the XXV GIRI Symposium, 2011 Nov05, Monaco. Int J High Dilution Res. 2011; 10(35).
- [2] Proceedings of the XXVI GIRI Symposium, 2011 Sep04, Foz do Iguaçu (Brazil). Int J High Dilution Res. 2011; 10(36).
- [3] Proceedings of the XXVI GIRI Symposium; 2012 Sep20-22, Florence (Italy). Int J High Dilution Res. 2012; 11(40).
- [4] Teixeira MZ. Homeopathic use of modern drugs: therapeutic application of the organism paradoxical reaction or rebound effect. Int J High Dilution Res. 2011; 10(37): 338-352.

- [5] Teixeira MZ. Rebound effect of drugs: fatal risk of conventional treatment and pharmacological basis of homeopathic treatment. *Int J High Dilution Res.* 2012; 11(39): 69-106.
- [6] Bond RA. Is paradoxical pharmacology a strategy worth pursuing? *Trends Pharmacol Sci.* 2001; 22(6): 273-276.
- [7] Bond RA, Giles H. For the love of paradox: from neurobiology to pharmacology. *Behav Pharmacol.* 2011; 22(5-6): 385-389.
- [8] Smith SW, Hauben M, Aronson JK. Paradoxical and bidirectional drug effects. *DrugSaf.* 2012; 35(3): 173-189.
- [9] Teixeira MZ. Scientific evidence of the homeopathic epistemological model. *Int J High Dilution Res.* 2011; 10(34): 46-64.
- [10] Teixeira MZ. Results of mass overdose of homeopathic medicines in United Kingdom: scepticism or prejudice? *Int J High Dilution Res.* 2010; 9(30): 3-4.
- [11] Posadzki P, Alotaibi A, Ernst E. Adverse effects of homeopathy: a systematic review of published case reports and case series. *Int J ClinPract.* 2012, 66(12): 1178-1188.
- [12] Aviner S, Berkovitch M, Dalkian H, Braunstein R, Lomnicki Y, Schlesinger M. Use of a homeopathic preparation for “infantile colic” and an apparent life-threatening event. *Pediatrics.* 2010; 125: E318–23.
- [13] National Institutes of Health Consensus Development Conference on Infantile Apnea and Home Monitoring, Sept 29 to Oct 1, 1986. *Pediatrics.* 1987; 79(2): 292–299
- [14] Oberbaum M, Samuels N, Ben-Arye E, Amitai Y, Singer SR. Apparent life-threatening events in infants and homeopathy: an alternative explanation. *Hum ExpToxicol.* 2012; 31(1): 3-10.
- [15] Walach H, Sherr J, Schneider R, Shabi R, Bond A, Rieberer G. Homeopathic proving symptoms: result of a local, non-local, or placebo process? A blinded, placebo-controlled pilot study. *Homeopathy.* 2004; 93(4): 179-185.
- [16] Bernez A, Perrinaud A, Abdallah-Lotf M, Magro P, Machet L. [DRESS syndrome with severe pulmonary involvement following oral intake of a homeopathic drug]. *Ann Dermatol Venereol.* 2008; 135(2):140-142.
- [17] Geukens A. Two more case histories. *J Am Ins Homeopath.* 2001; 94(2): 93–105. Available at: <http://www.homeopathyusa.org/journal/>.
- [18] Dantas F, Rampes H. Do homeopathic medicines provoke adverse effects? A systematic review. *Br Homeopath J.* 2000; 89 (Suppl. I): S35-8.

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