CORRESPONDENCE

Pragmatic trials: how to adjust for the 'Hawthorne effect'?

Hashimoto *et al*[1] have conducted an interesting study to offer a practical and pragmatic insight into steroid-dependent asthma therapeutics in real-world practice. They proposed a strategy based on internet monitoring of objective (spirometry and fraction of exhaled nitric oxide) and subjective (asthma control and asthma-related quality of life questionnaires) measurements to adjust the dose of oral corticosteroids in patients with severe, uncontrolled asthma. However, how 'pragmatic' is a trial in which the patients have to sign an informed consent in order to participate in the study? Signing informed consents or receiving simple verbal instructions has been shown to significantly influence the outcome of interest in simple or more complicated studies.[2 3] This is known as the 'Hawthorne effect' or the unexpected and unexplained reactivity to experimentation in human subjects who are aware of their participation in a study.[4] Specifically in asthma, monitoring for drug intake improves adherence, which consequently is expected to affect treatment outcomes (eg, objective measurements, symptoms, asthma control and quality of life).[5] And indeed, in the study by Hashimoto *et al*,[1] the compliance with measuring forced expiratory volume in one second and fraction of exhaled nitric oxide or completing questionnaires was very high, suggesting a high adherence in asthma medication intake too. It will be of interest to somehow determine compliance with measuring objective and subjective parameters in the internet group outside the context of a study. It can be argued that the 'Hawthorne effect' should have influenced both the internet group and the conventional management group, although it will be very difficult, if not impossible, to measure the amount of the effect this phenomenon has on each experimental arm. However, compliance is of great importance especially for the internet group, since it may affect the parameters on which medication intake is based and thus the effectiveness of this clinical strategy as a corticosteroid sparing approach or even in terms of asthma control and quality of life.

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Authors' response

We thank Dr Konstantinou for his interesting letter[1] in response to our paper on internet-based management of severe asthma.[2] He raises a pertinent question about how pragmatic is a study in which the patients have to give their consent to participate? We agree that asking patients to sign for their participation takes the study a step away from real-life settings, but it would be unethical to perform an interventional study without obtaining the patient's permission for randomisation and data to be collected. There are alternative approaches, proposed by Zelen in 1979,[3] and mainly used in emergency settings, consisting of post-randomisation consent. In such designs, it is allowed for participants to refuse their allocated treatment or 'crossover' to any treatment arm. However, this method is ethically very controversial and could result in some serious statistical drawbacks.[4]

Another point mentioned by Dr Konstantinou was a possible influence by the 'Hawthorne effect' (ie, a change in behaviour due to trial participation rather than treatment) on the outcomes of the study.[5] As suggested, it would be ideal to verify the patient's adherence to asthma treatment outside the context of a study. There are reports of objective assessment (blood levels of cortisol) of real-life compliance to oral corticosteroid treatment demonstrating that up to 50% of asthma patients did not adhere to the prescribed medicine.[6] Compared with these data, we indeed observed rather high levels of adherence, but given the fact that both groups in our study demonstrated similar adherence as well as comparable ratings for satisfaction with the treatment strategy, we do not believe that the 'Hawthorne effect' played a major role in influencing the difference between internet-based and conventional management of severe asthma.

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