

Tröhler U (2003). MacLean 1818: comparing like with like and recognising ethical double standards in therapeutic experimentation.



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Although Charles MacLean was a verbose and repetitious author, he used an astute epistemological vocabulary to draw attention to the often inconsistent and irrelevant evidence adduced in support of some of the routine medical treatments of his time, particularly bloodletting. In the Preface to his *Results of an investigation, respecting epidemic and pestilential diseases* (1818), he stressed that conclusions that he had deduced from experiments should not be "submitted to the dictates of authority", but rather "confirmed, or refuted, by the repetition of similar experiments".

What philosophic enquirer, rejecting the mode of induction, would think himself justified in giving credit to the evidence of tradition and testimony? Yet such has hitherto been the foundation of almost all the principal conclusions in medicine!

Thus, in the very nature of the evidence, which has been heretofore almost universally resorted to, in medical disquisitions, we find one of the most extensive sources of mortality and delusion. It is not, however, that the evidence applicable to medicine, is, in its nature, uncertain; but that what has been adduced as evidence, has been of an improper kind! (MacLean 1818, p ix-x).

MacLean goes on to point out the importance of comparing like with like, and draws attention to and condemns the still often heard ethical double standards in the conceptualization of human experimentation ([Oxman et al. 2001](#)).

In the 1790s MacLean had started trying out mercury on himself to treat an intermittent fever. He found that "the result was so satisfactory, that I resolved to continue the practice, in future, in every case of this disease and my expectations were not disappointed" (MacLean 1818, p 501). By "analogical reasoning" he extended its use to yellow fever in Jamaica, jaundice, ophthalmia, acute fever, sunstroke, diarrhoea, dysentery and typhus. In 1796 his results - which had been presented only in general terms such as "unequivocal success" - were attacked after a comparison of mortality in his "mercury-wards" in the Calcutta General Hospital and the levels of mortality in other wards.

MacLean rejected these critical inferences by pointing out that like was not being compared with like: he observed that his patients were all in a dangerous state, and generally in the late stages of 'hepatitis', dysentery, or 'dropsy', "whilst those in the other wards consisted exclusively of young men, from the European corps, in garrison..., seldom labouring under diseases severer in degree, than gonorrhoea, or slight intermittent [fever.....]. Yet, under such dissimilar circumstances, were attempts made, by a comparison of relative mortality, to deduce inferences, and to propagate reports, unfavourable to my method of treatment!" ([MacLean 1818, p 503](#)).

MacLean's critics were invited to join him in a clinical trial comparing his patients with similar patients taken from their caseload, just as another opponent of bloodletting, [Van Helmont](#), had done two centuries earlier. MacLean reports that his critics were only able to evade this proposition:

by pretending a reluctance to try experiments with the lives of men; as if it were not manifest, that my experiments, which were always first tried upon myself, were capable of being conducted with perfect safety; or as if the practice of medicine, in its conjectural state, were anything else, than a continued series of experiments, upon the lives of our fellow-creatures ([MacLean 1818, p 504](#)).

Still today, clinicians too rarely acknowledge that their everyday decisions about treatment involve human experimentation. The challenge is to ensure that such experimentation is pursued in ways that protect patients in conditions of therapeutic uncertainty, and promote an understanding of how to do more good than harm.

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MacLean's long attack on the practice of bloodletting and the kind of inconsistent evidence put forward in its support was appropriate for the literature he chose to review. His review gave him the opportunity to make some further methodological comments: "the days of miracles are past", he wrote, and even the influence of the Pope could no longer maintain an argument based on tradition, romantic tales, hearsay, ample experience, and the testimony of respectable gentlemen. Instead he pleaded that "Circumstances, delivered as facts, from the presumed experience of individuals ought never to weigh against principles, which are deduced from numerous and undoubted facts, and which can be put to the test of experiment by all mankind" (MacLean 1818, p 454).

Implementation of such a programme would have been a real advance, but in this respect, MacLean was as deserving of criticism as those he criticised. As a justification for his views, he had published reports as early as 1796 of "some of the cases of dysentery" whom he had treated successfully with mercury and opium (MacLean 1818, p 502-507). In 1818, in a privately printed volume entitled *Practical illustrations of the progress of medical improvement for the last thirty years*, he reported seventy selected cases, ranging from scurvy to pneumonia, all of whom he claimed to have cured with mercury. In contrast he claimed that nine patients had died of burns because they had been treated in the traditional way by bloodletting. It has always been easier to see faults in others than one's own limitations!

Bibliography

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