

THE HAZY FRONTIER BETWEEN FRAUD AND SCIENTIFIC TRUTH

LA DIFUSA FRONTERA ENTRE EL FRAUDE Y LA VERACIDAD CIENTÍFICA

BELMONTE MARTÍNEZ J¹

Recently, the scientific world was violently shaken by one of the most scandalous frauds in recent times. Korean researcher Hwang Woo-Suk, the presumed author of spectacular findings in the formation of human stem cells through complex nuclear transfer procedures, whose research was published with the endorsement of *Science*, a magazine with undisputed reputation, and hastily considered to be a giant step for curing many incurable diseases, has been forced to recognise the falsity of his findings. Considering the social, religious and even political impact of news related to modern genetic research, this event has been taken up by conventional news media, thus exceeding the strict scope of medicine and leading to an obvious but unfair deterioration of credibility and reputation.

It is difficult to avoid extrapolating this unfortunate event to the ophthalmological bibliography and the universe in which we live. In fact, if a magazine enjoying that level of reputation, the Holy Grail of the healthy scientific ambition of many researchers and allegedly protected against involuntary or deliberate falsity by means of a rigorous and strict analytical review of its contents by a highly qualified editorial board, can fall victim to a charlatan, what faith can we have in the information published by other less rigorous and more tolerant publications? Because the method of selection of these magazines (albeit conditioned by the quality and originality of information obtained under the assumption that essays were objective and dispassionate) may also be contaminated by debatable reasons related to the geographical or linguistic origin of its authors, to endogamous academic criteria or reproachable connections and above all to powerful economic and commercial interests.

In this context, we must ask ourselves whether the actual and effective criteria applied at present provide a guarantee for accepting or rejecting the authenticity of a scientific paper. Is it sufficient to establish stringent requirements for a rigorous Forman preparation, adequate wording in English, the inclusion of sufficient verifiable bibliography according to editorial standards and, above all, the design of the research utilising apparently impeccable methodology? How can the funding of biomedical research be regulated in order to exclude any temptation of fraudulent manipulation?

It is not unreasonable to suspect that for a competent scientist it would be relatively easy, fulfilling even the most stringent formal requirements for publication, to publish false or manipulated data and produce clearly excellent work as regards contents but deliberately false. Can anyone doubt that Hwang Woo-Suk's paper sent to *Science* was formerly impeccable?

In this time, scientific publications which exceed biomedical information sources can be structured in several levels. The first one is made up by those which publish their information through the Internet, having an obvious value due to the immediate and vast research capability but lacking any verification means, thus leaving its reliability dependent on the criterion, the preparation and the good will of the reader. The second level comprises the increasingly numerous journal-like publications with tabloid-type informational content, characterised by innovative and ultramodern appearance, financed by the powerful biomedical industry and inevitably populated by open or relatively covert commercial interests. These publications also lack independent filters and rigorous assessments of messages, and

¹ Ph.D. in Medicine.
E-mail: belmonte_jos@gva.es

therefore their reliability also depends on the good will of the reader, of his scientific knowledge and critical analysis abilities, because they mix acceptably serious and prudent information with highly suggestive novel proposals frequently imbued with a high rate of presumptuous audacity. The third level is comprised by the hundreds of medical publications generally written in non-standard languages which barely survive outside the inner circle of MedLine/Index Medicus. Weighed down by the serious drawback of their lack of impact, trapped in a vicious circle involving the difficulty of obtaining original texts due to the knowledge of authors about their low impact, these publications are forced to waive excessively strict formal conditions if they don't want to go broke. This sensible restriction determines that, even though they publish reliable content, they have a tendency to entertain unscrupulous authors driven by their own ambition or the pressure of their sponsors. Finally, the fourth level is made up by the privileged impact magazines, the stars of the exclusive Med Line galaxy in which, supposedly, truth should be incontestable as a result of an apparently rigid control of the scientific nature and quality of papers, of the availability of highly qualified reviewers with a high level of impartiality and reputation given by the rank and origin of their signatures.

The question we may ask ourselves is whether, in spite of all these requirements, even the latter exclusive elite is able to guarantee the truthfulness of its publications. Reality tells us that the casual unmas-

king of the Korean scientist seems to question this premise, although it would be desirable for this event to be unique and exceptional.

In fact, publishing false information wrapped in apparently impeccable methodologies is a powerful temptation for a scientist without excessive shyness, pressed by competition, public and private funding or simple vanity and professional ambition. In the world of science, in which the most privileged minds partake, it is not too complicated to choose truth as the desirable and generous goal or deceit as a comfortable recourse for personal success and satisfaction of boundless greed. For this reason, it cannot be discarded as a malicious hypotheses. The event referred to above is an example of this hypotheses and has been crude witness to it.

The conclusion to which this reasoning leads us is obvious: if it is increasingly difficult to discover deceit and dishonest but subtle manipulation, extreme precautions must be taken before accepting apparently spectacular findings proposed impatiently by some as the pristine and brilliant culmination of their work. The acknowledgement of these findings must be withheld until confirmed by several independent researchers, keeping an eye on those who, going beyond the legitimate pride of a scientist who was able to unravel any enigma and overcame the challenges in encounter on the way, prematurely glorify themselves using the media as mirrors, postulating themselves repeatedly as incontestable pioneers and honest champions of science.