

Reading, Medline and medical information

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Abstract

After telling us how Ernst Chain found Fleming's paper in the British Journal of Experimental Pathology, the Author comments on the importance of regular reading of medical magazines. On

this subject, he reminds the usefulness of such habit while taking part in boards for Internal Medicine Consultants.

Key words: medical journals, Medline, medical information.

It was with considerable emotion that on reading, years ago, a biography of Howard Florey, I learned how Ernst Chain came across the famous article by Fleming on *Penicillium notatum* which, since 1929, had lain forgotten in the pages of the British Journal of Experimental Pathology.

In 1938, Chain joined Florey's team in Oxford, with the intention, among other projects, of throwing light on Fleming's initial discovery: the lysozyme. The objective was to discover the chemical structure of the lysozyme, and to identify the substrate of the bacterial wall on which it acted. Chain therefore began to gather the sparse literature available, having requested from the library of the Dunn School in Oxford, volumes 3, 8 and 11 of the British Journal of Experimental Pathology, in which four articles had been published on the subject; two by Fleming and two by Florey.

But fortunately, Chain was in the habit of leafing through journals and would glance, in passing, at all the articles, even those that apparently were of no interest to him, in order to keep himself up-to-date on the latest scientific discoveries. And this was how he came across the article by Fleming, in volume 10.

History relates that in 1929, Fleming discovered penicillin - an active medication in human infections by gram-positive bacteria. But the reality was slightly different. Fleming observed, "in vitro", a phenomenon of antibiosis that intrigued him: the inhibition of the growth of staphylococcus colonies by a yellow liquid segregated by the *Penicillium notatum*, which

he called penicillin. Although we cannot guess what might have gone through his mind at that time, it is highly likely that at some point, he envisaged the therapeutic potential that penicillin would later come to demonstrate. As a laboratory man, his focus was on the possibility of selecting bacterial strains in vitro that were not sensitive to penicillin. So much so that the communication with which he announced his discovery has the explanatory title: On the antibacterial action of cultures of a *Penicillium* with special reference to their use in the isolation of *B. influenzae*.

But for the moment, let us leave Fleming in his laboratory at St. Mary's, and return to Chain's finding nine years later, while browsing through various volumes of the British Journal of Experimental Pathology at the Dunn School. It was precisely this habit, of regularly consulting journals, even without any clearly-defined objective, that led to that magical moment when his destiny crossed by that of Fleming, opening the door to the era of antibiotics.

Having arrived at this point, we may ask ourselves what would have happened if Chain had had access to the Medline database, as we do today. Undoubtedly, he would have found the four articles about the lysozyme, but perhaps he would never have found Fleming's article. Does this mean we are still in the "pre-antibiotic era"? It is a question that we may never be able to answer, but which raises a series of questions related to bibliography research, reading of journals, in short, the whole process that leads to the acquisition of medical knowledge.

I believe that regularly reading journals is a dying habit among young physicians, perhaps because they believe that the new technologies will provide them with all the available information whenever they need it. This is a valid point, but one that has led to some embarrassing situations, as in those cases in which a laboratory was asked for all the literature that exists

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on “indeterminate febrile syndrome” or “bronchial asthma”!

Personally, I continue to believe that nothing replaces regular and persistent reading of medical journals. It's not just a question of being informed about the latest scientific news, which is, in itself, important. The question is more complex, because in my view, only direct contact with journals (even in their more modern version, online journals) enables a fascinating experience, namely: Being familiar with the graphic aspect and writing style, identifying the usual publishers and authors, and entering, albeit at the periphery, into the intimate world of the cultural centers that have contributed the most to the progress of Medicine. Because it is only through an experience of this type that it is possible to acquire the critical capacity necessary to select quality information, from the avalanche of publications offered to us on a daily basis. But there's more: accidental reading of a journal can reveal surprises capable of inspiring investigative works, resolving problems that appear insurmountable, and leading to new bibliographic research that adds knowledge and widens perspectives. As a colleague of ours said with rare clarity, “you acquire much of the unexpected”.

I believe this set of reasons justifies what I am defending here: The regular reading of journals. Even so, I cannot resist relating a personal episode which, for obvious reasons, sticks in my mind.

Between 1957 and 1970 $\frac{3}{4}$ the period of my career at the H.C.L. which culminated in the feared exams for the “Médico dos Hospitais” (Hospital Physician) $\frac{3}{4}$ I was in the habit of regularly visiting the library of the Hospital de São José. There, among the “journals of the month”, I would read around twenty publications, mostly on Internal Medicine, the least of the medical sub-specialties, basic disciplines, and Surgery. Some of them I read and re-read in the smallest detail, while others I just glanced through quickly, sometimes only reading the abstract. For all of them I noted down, using my own, home-made filing system, the articles that seemed important to me, indicating their type (clinical case studies, editorials, revisions) and giving them a score from 1 to 4. Some of the articles, which contained study material, I photocopied and kept on file. At night, in the café, it was usual to discuss, with my colleagues and work companions, the latest scientific news, the authorized editorial, or the recent review that had appeared in the New England, the

British, the Canadian, the Archives, or the American Journal, as we would refer to the most prestigious journals in Internal Medicine.

In one of the journals I read on a regular basis - the American Heart Journal — I spotted, in the February 1965 issue, an article that attracted my attention: “Restrictive cardiac disease”. Besides being something new, I noticed that this title was part of a trend that had begun some years previously: Grouping the diseases not by their morphological characteristics, but by their functional consequences. Instead of myocarditis, myocardosis and myocardial sclerosis, the conversation turned, instead, to: restrictive, hypertrophic, dilated and obstructive cardiopathies. Each of these cardiopathies presented, irrespective of its cause and its anatomopathological expression, a haemodynamic profile that would become known, thanks to cardiac catheterism and angiocardiology. We were, it seemed evident, witnessing a historical shift that would cause the epicenter of Medicine to move. Following the German supremacy personified by Virchow, Eppinger, Volhard and others, it was the turn of the young, dynamic Anglo-Saxon influence, which was more focused on valuing physiopathology.

It is recorded, in a brief commentary, that on this side of the Atlantic, it was Goodwin who began to arrange the cardiopathies with this new perspective. His articles began, from there, to appear in the Lancet and the British Medical Journal, and became a reference for us. Therefore, I could not easily forget the opportunity I had, in 1979, to see him, now retired, taking part in the meetings of the Hammersmith Hospital, with the habitual red rose he always wore on his white coat collar.

But let us go back a little further. In 1967, I applied for the first time to “Médico dos Hospitais” (Hospital Physician), along with other colleagues, including the much-missed José Pinto Correia. Among the bank of examiners was an internist with a cardiological vocation $\frac{3}{4}$ Moniz Bettencourt $\frac{3}{4}$ and when the “pathology points” were put up, for which we had ten days to prepare, there appeared a title that was not included in the treatises of the time: “Restrictive cardiopathies”. Without a shadow of a doubt, Moniz Bettencourt was also an avid reader of the American Heart Journal, and had not only had read the article, but had loved it!

For me, my task was suddenly made easy: all I had to do was look for the photocopy that I had, fortuna-

tely, filed and studied, and which gave me the “bare bones” for preparing the test. But I remember perfectly that among the other candidates, the initial reaction was one of perplexity, if not even panic, which only disappeared when, some days later, the respective “support staff” located the article “Restrictive cardiac disease” in that issue of the American Heart Journal.

Having said that, I will insist more on the advantage of regularly reading medical journals. But, to conclude, I would just like to quote a phrase by Zacuto Lusitano, included among 80 precepts addressed to physicians in his “Introitus Medici, ad Praxin” and which states: “Study, read and know how to choose what you read”.

As we have seen, in the middle of the 17th Century, when the medical literature that was incomparably less abundant, careful sifting of good and bad information was advised. Which, in fact, is only possible through a long process of maturation, the result of persistent bibliographic research, and plenty of reading. ■

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