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EDITORIAL / *Covid-19*

COVID-19: Pharmacology has kept the science ship running during the storm

By the end of 2019, the world discovered the new epidemic that would quickly become the most serious pandemic of the last hundred years. In just a few weeks, the identification of the pathogenic virus, its sequencing and the dissemination of diagnostic tools in virology laboratories throughout the world made it possible to diagnose the first cases in France in January. Very quickly, numerous therapeutic proposals with little pharmacological basis were put forward as a universal remedy for the “easiest to treat infectious respiratory disease ever”.

Aware that misinformation was going to find a favourable soil for its propagation in the context of population panic, the French Pharmacological Society gave the three of us the responsibility to set up, at the beginning of March 2020, Pharmacovid, a public health information site on medicines and coronavirus disease 2019 (COVID-19) [1].

This website relies on the expertise of the French Society of Pharmacology and Therapeutics (SFPT) with a collegial validation of the answers of each question by experts. Recognized by the Ministry of Health and the French Medicines Agency (ANSM), this site has had an unexpectedly phenomenal success with more than one million visits, due to its seriousness and constantly updated information.

While antiviral repositioning therapies have been disappointing, we were hoping for vaccines that could have provided at least 50% protection. The surprise was the extraordinary effectiveness of mRNA vaccines that were developed in record time in the context of a pandemic and massive investment.

In this issue, Dominique Deplanque and Odile Launay describe how in less than one year, while respecting usual clinical development rules, several vaccines have been put on the market and mass vaccination campaigns have been deployed with an overall efficacy between 70 and 95% in phase III trials and excellent efficiency in real life [2]. Lacroix et al., on behalf of the French Network of Pharmacovigilance Centers, present the main highlights of the first weeks of pharmacovigilance monitoring of COVID-19 vaccines which, through its incredible mobilization, was able to provide a real-time safety analysis of COVID-19 vaccines [3]. Antoine Pariente and Julien Bezin explain how the performances of pharmacovigilance monitoring for the early detection of safety signals needs to be completed with pharmacoepidemiology studies for more common events. An important near-real time pharmacoepidemiological plan has been developed for all COVID-19 vaccines in Europe to provide with some results as early as possible [4]. Finally, Jean-Louis Montastruc et al. emphasized the relationships between vaccine and society in a social pharmacology approach [5].

As this issue of Therapies shows, the past year has reminded us that pharmacology and drug development is a science. As such, we must continue to work methodically to make effective drugs and especially vaccines exhibiting an excellent and quantifiable benefit/risk balance, available to save lives. The populist temptation to rush unproven drugs has held back research without saving a single life. Speed is the opposite of precipitation. Let's get back to science.

Disclosure of interest

The authors declare that they have no competing interest.

References

- [1] Société française de pharmacologie et de thérapeutique (SFPT). Médicaments et Covid; 2021 <https://sfpt-fr.org/covid19> [Accessed 21 May 2021].
- [2] Deplanque D, Launay O. Efficacy of Covid-19 vaccines: from clinical trials to real life. *Therapies* 2021;76:277–83.
- [3] Lacroix C, Salvo F, Gras-Champel V, Gautier S, Valnet-Rabier MB, Grandvillain A, et al. French organization for the Pharmacovigilance of COVID-19 vaccines: a major challenge. *Therapies* 2021;76:297–303.
- [4] Pariente A, Bezin J. Evaluation of Covid-19 vaccines: pharmacoepidemiological aspects. *Therapies* 2021;76:305–9.
- [5] Montastruc JL, Lafaurie M, de Canecaude C, Montastruc F, Bagheri H, Durrieu G. Covid-19 vaccines: a perspective from social pharmacology. *Therapies* 2021;76:311–5.

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