

## Sars-cov-2: a hidden crisis in health, food and nutrition, for all the population but particularly for patients with chronic disease as diabetic patients!

Emmanuel Andrès<sup>1,2\*</sup>, Jeyniver Ghanem<sup>2</sup>, Alain Dieterlen<sup>3</sup>, Bernard Gény<sup>2,4</sup>

<sup>1</sup> Service de Médecine interne, diabète et maladies métaboliques, Hôpitaux Universitaires de Strasbourg, France

<sup>2</sup> EA 3072 Mitochondrie, stress oxydant et protection musculaire, Faculté de Médecine et Université de Strasbourg, France

<sup>3</sup> Institut IRIMAS 7499, Université de Haute Alsace, France

<sup>4</sup> Service d'Explorations fonctionnelles et Laboratoire de Physiologie, Hôpitaux Universitaires de Strasbourg, France

\*Corresponding author: Emmanuel Andrès, Service de Médecine interne, diabète et maladies métaboliques, Hôpitaux Universitaires de Strasbourg, France.

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### Abstract:

SARS-CoV-2 is generating a crisis in health, food, and nutrition. This is particularly the case in patients with chronic illnesses, such as diabetic patients, the elderly and patients living in social and financial precariousness. So despite the many remaining uncertainties that are profoundly changing people and habits, there is undeniably good reason not only to detect, correct, educate, and implement corrective measures, but also to carry out research and assessment.

**Keyword :** Sars-cov-2 ; food ; nutrition ; chronic disease ; diabetics

On March 2020, Alsace, Eastern France (1.9 million of inhabitants), was the first place where the Sars-Cov2 pandemic began in France. The prevalence of the virus (15%) is one of the highest with that of Wuhan, Lombardy, Madrid areas and New York City. At the time of this writing, more than 1,178 patients died from Covid-19 in Alsace and hundreds are still hospitalized.

For several weeks, SARS-CoV-2 has sat uninvited at our tables, particularly in European countries with renowned culinary traditions like Italy, Spain, and France. Yet fear not, for the English-speaking countries have since also been summoned to join the festivities. Rest assured, the acronym SARS-CoV-2 does not refer to any artificial ingredient, sweetener, or colorant, but to a natural product grown in an environmentally friendly fashion in bats.

The recipe for the international success of SARS-CoV-2 is, alas, unknown, and despite a noticeable tremor in China back in late 2019, its triumph has been unexpected. Although the recipe for this SARS-CoV-2 concoction continues to be the subject of conjecture and controversy, the direction that this "viral dish" is heading in seems to be the same as that of certain drinks and other fare that pervade all regions and all cultures – Coca-Cola's soft drinks and McDonald's hamburgers among them. The repercussions for health and the financial reserves of our societies are, however, far less palatable. This is also the case in patients with chronic illnesses, such as diabetic patients, the elderly and patients living in social and financial precariousness.

Our most renowned chefs have peered into the pot in the hope of deciphering the ingredients. One notable example is that bard of Massalia, the druid of the Calanques, Prof. Didier Raoult(oriX). He has added it as an original recipe to the menu of his "establishment" alongside another famous Marseille specialty, bouillabaisse, but with an added pinch of hydroxychloroquine and azithromycin [1]. This Marseille twist seems to

have especially tickled the taste buds of such illustrious patrons as president Trump, president Macron and an expert panel of culinary celebrities, since they are all talking about it [2].

But let us not frighten the eminent Gault and Millau, the sticklers, or the incorrigible complainers – all 66 million of them in our great country – who are probably wondering right now why we have got it into our heads to talk about gastronomy, chefs' recipes, and dishes of the day in the *Endocrinol Diabetes Metab J*. It's because it is genuinely – definitely even – worth our while looking at food, at nutrition in general, and at undernutrition in particular, during this SARS-CoV-2 pandemic that we are experiencing.

As we now know, among the patients with the most serious clinical forms of this infection (hypoxemic respiratory failure) are very specific populations who often have a difficult relationship with food. These include overweight and obese subjects, hypertensives, diabetics, and elderly subjects (>65 years) with comorbidities [3]. Some will object that the latter population is not the worst affected by the junk food phenomenon, which has become widespread since the 1980s. That may be true in other circumstances but not with SARS-CoV-2, which causes major and at times fatal "indigestion" in these subjects (see the punishment for gluttony in the film *Seven*).

Severe forms of SARS-CoV-2 infection account for 15 to 20% of all forms and in 5% a stay in intensive care is necessary with a survival rate of about 50% [3]. Among the patients hospitalized, half of patients had co-morbidities and in particular diabetes or cardiovascular disease (CVD) [4-6]. Patients with diabetes accounted for 10-20% of those hospitalized, 22% of those admitted to intensive care and 31% of deaths, noting that 48% of those who died had hypertension and 24% had CVD, but it is not possible to say whether these factors were independent or age-related.

Overall, diabetes was associated with a hospital odds ratio of 2.85 (95% CI 1.35-6.05,  $p=0.0062$ ) in the initial Chinese study [4].

Other manifestations of the disease negatively impact food intake and nutritional homeostasis in the human body. They cause debilitating dysgeusia, which often lasts for several weeks or profuse diarrhea resulting in rapid weight loss, as well as probable dietary deficiencies in terms of both insufficient calorie intake and inadequate amounts of nutrients and trace elements [3]. The most serious forms of SARS-CoV-2, those that relate to patients in progressive and intensive care, cause complex medical problems that require highly technical management. Without question, clinicians are aware of preventing malnutrition and undernutrition in this setting, but that aim is difficult to meet in such a critical situation, especially when the patient's immediate survival is in jeopardy. Hence, we see patients looking gaunt and at times emaciated, their needs being similar to those of severe burn victims. They have major sarcopenia and critical illness polyneuropathy, with nutritional deficiencies playing a significant role in both.

And what about the rest of the population, you might ask. Here too, SARS-CoV-2 is having a deleterious effect on nutrition. This particularly applies to people who are socially isolated or in financial difficulty, in whom problems are emerging with deficiencies of calories and micronutrients (trace elements, vitamins, etc.) sparked by a shortage of certain foodstuffs, the increased price of food, and difficulty in getting to stores. These concerns affect not only elderly subjects, but also those living in precarity, financial or otherwise, such as students, the homeless, and migrants. And that is to say nothing of developing countries, where these problems will be exacerbated and probably cause a large proportion of deaths.

To conclude, SARS-CoV-2 is generating a crisis in health, food, and nutrition. So despite the many remaining uncertainties that are profoundly changing people and habits, there is undeniably good reason not only to detect, correct, educate, and implement corrective measures, but also to carry out research and assessment. It is crucial for clinicians, researchers, sociologists, journalists, and politicians to tackle this issue.



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## Conflicts of interest:

The author has no conflicts of interest in relation to this article.

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