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Hypertension management during the COVID-19 pandemic: what can we learn for the future?

Over the past 2 years, the COVID-19 pandemic has put a lot of pressure on healthcare systems. The limitations in healthcare access and utilisation and the social and economic stresses induced by the COVID-19 outbreak have had a major negative impact on the daily life and management of patients, particularly those with chronic conditions such as hypertension, diabetes, and cardiovascular and renal diseases. Indeed, the restriction of elective and non-urgent visits and the fear to be exposed to the virus in the medical environment have significantly reduced in-person visits to general practitioners, specialists, pharmacies and other healthcare providers thereby interfering with the diagnosis, the management and the continuity of ongoing treatments. In this issue of *the Journal*, Weber et al. [1] present another aspect of the negative consequences of the pandemic on hypertension management with the results of a survey performed among European Excellent Centers showing a 30% reduction of diagnostic and therapeutic procedures in 2020 when compared with 2019 [1]. The clinical consequences of the delayed diagnoses and interventions are not known but it is conceivable that they might have exposed some patients to the development of complications. The new barriers imposed by the pandemic have also generated a great anxiety among groups of patients, who were often, but not always adequately identified as having a high or very high risk of developing a severe COVID-19 infection. Thus, hypertension was initially considered as a major risk factor for the development of a COVID-19 infection increasing the susceptibility to the virus and leading to more disease course of COVID-19 and poorer outcome including higher mortality rates. However, after correction for age, body mass index and comorbidities, a direct role of hypertension could not be firmly established and the prevalence of hypertension among COVID-19 affected patients was found to be similar to that observed in the age-matched general population [2]. The lockdown and movement restrictions have also promoted the development of unhealthy lifestyle behaviours resulting for example in an increase in sedentarity, body weight, smoking and alcohol consumption [3]. However, in some individuals, the COVID-19 outbreak resulted in an increase in self-care behaviours motivated essentially by the fear of being contaminated and the attempt to be better protected. A poor adherence to antihypertensive drug treatment is a major issue in the management of hypertension in regular times. Although few studies have assessed the impact

of the pandemic on drug adherence in hypertension several factors may have contributed to lower drug adherence including a lack of medications, the reduced access to pharmacies, and a decrease in physicians services for medication control and adjustment. So far, data available are inconsistent with some reports suggesting an increase and others a significant reduction in drug adherence during the pandemic. In hypertension, the doubts regarding the role of blockers of the renin-angiotensin system (RAS) as potential risk factors for COVID-19 hospitalisations and the initial recommendation to replace RAS blockers by calcium channel blockers has certainly destabilised many patients treated with these medications leading to a transient reduction of drug adherence. Today, we know that the use of RAS blockers is safe and does not affect the course of the viral infection and might even be rather protective [4,5].

Hospital and emergency admissions for acute myocardial infarction, stroke, heart failure, and other complications of chronic cardiovascular conditions have decreased by about 40% during the COVID-19 period and the number of patients initiating a therapy for incident kidney failure was 30% lower than projected in the US in the first 4 months of the pandemic [6]. One important issue is that COVID-19 related restrictions have disproportionately harmed racial and ethnic minorities and socially disadvantaged populations leading sometimes to dramatic clinical situations when patients have spontaneously forgone any care or have had reduced access to life saving procedures such as cardiovascular interventions or dialysis [6–8]. Not surprisingly, these declines have been associated with a rise in out-of-hospital deaths. As of today, the real impact of the pandemic on the rate of blood pressure control in the population remains unknown. Interestingly, contradictory results have been published with significant deteriorations in some countries such as the US [6] and surprisingly slight improvements in others such as Italy [9]. Therefore, carefully conducted studies are still needed to assess the consequences of the COVID-19 pandemic on blood pressure control in hypertensive patients.

Now that infection rates are decreasing in several European countries and restrictions are being progressively phased out, it would be appropriate to reflect on the lessons one could draw from this pandemic to improve the future management of hypertension in difficult times. This type of thinking has already started in some experts groups as published recently by the Global

Coalition for Circulatory Health of the WHO [10] or the European Innovation Partnership on Active and Health Ageing or hypertension experts [11]. Several main themes emerge from these reflections. These include a faster development of telemedicine with an increased use of digital health tools such as telemonitoring of home blood pressure, the development of patients' centred strategies and the reinforcement of the continuity of medication supply.

The development of telemedicine for the management of hypertension has started before the pandemic but a marked surge in virtual visits and digital health care solutions was observed during the first wave of the pandemic in several countries. The purpose was to replace face-to-face visits thus reassuring and maintaining the contact with patients. According to some assessments, virtual visits were well accepted and led to better control of BP in patients using this possibility than in those not using it [12]. However, the approach remains largely underused and still suffers from some limitations. The first is that there are still large differences between countries in their ability to deliver a reliable telehealth system with proposed solutions that are often not standardised and regulated. One important issue is the access to these digital solutions and the definition of which patients should be prioritised avoiding a 'digital divide' between younger and older as well as between high and low income patients. At last, telemedicine should be available not only to physicians but also to other healthcare partners and today, most healthcare providers lack training and experience with digital health solutions. In the same context, home blood pressure monitoring is encouraged in the 2018 ESC/ESH guidelines for the management of arterial hypertension [13]. Thus, blood pressure telemonitoring systems should have a growing place in the remote management of hypertensive patients. Today, the field is indeed rapidly developing with a variety of new devices but several practical issues remain to be solved as discussed in one of our recent editorial [14]. However, one limiting factor for a wider use of home blood pressure telemonitoring is the lack of financial support to patients as none European country actually reimburse even part of the costs of a home device.

Patient-centred multidisciplinary strategies involving healthcare professionals as well as informal carers are of utmost importance for the management of patients with chronic diseases and multiple comorbidities, such as individuals with hypertension and especially older patients. In the post-COVID times, these new approaches may also be relevant for the implementation of digital health solutions promoting a shift from hospital-based care to more community-level care and reinforcing self-management. The COVID-19 outbreak has revealed the insufficiencies of many healthcare systems but, in a certain sense, it is also a great opportunity to correct and to improve them. Now is the time to put in place new innovative management strategies based on

modern technologies and to involve all stakeholders, whether public or private. In the field of hypertension, this might represent a new way to fight against the global physician inertia and to advance further the control of hypertension in the population.

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