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Editorials

Preventing a covid-19 pandemic

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Rapid Response:

Re: Preventing a covid-19 pandemic: ACE inhibitors as a potential risk factor for fatal Covid-19

Dear Editor,

The coronavirus disease 2019 (Covid-19) outbreak from Wuhan, China, is spreading worldwide and is a major international concern as it has the potential to become pandemic [1].

The largest Chinese study with 44,672 confirmed cases of Covid-19 shows a high overall case fatality rate (CFR) of 2.3% [2]. Important co-morbidities are hypertension (CFR 6.0%), diabetes (CFR 7.3%), cardiovascular disease (CFR 10.5%) and age >70 (CFR 10.2%) [2]. Similar co-morbidities were noted for the SARS outbreak in 2003.

It is widely unclear what the commonality of these risk factors is. This is somehow surprising as compared to for example the 2009 pandemic H1N1 influenza outbreak, immunosuppressant patients were primary affected. Cardiac patients seem to be at higher risk in Covid-19. One possible answer could be the following: Patients with the comorbidities of hypertension, diabetes and cardiovascular disease might fulfil the indication for the use of

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On the other hand, it could be shown in animal experiments that both the ACE-inhibitor lisinopril and the angiotensin-receptor blocker losartan can significantly increase mRNA expression of cardiac ACE2 (5-fold and 3-fold, respectively) [5]. Further, losartan also significantly increases cardiac ACE2 activity [5].

Is a link between these observations possible? Is the expression of ACE2 receptor in the virus targeted cells increased by the use of ACE-inhibitor/angiotensin-receptor blocker and is the patient therefore more at risk for a severe course? We need rapid epidemiological and preclinical studies to clarify this relationship. If this were the case, we might be able to reduce the risk of fatal Covid-19 courses in many patients by temporarily replacing these drugs.

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Competing interests: No competing interests

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