Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

mechanisms due to restricted mobility. Another possible explanation is fear of infection. However, we found no differences in the proportion of patients requiring admission/surgery, which suggests that there has not been an increase in the severity threshold for emergency department visits as evidenced in other specialties.[3] In reference to the age of the patients there is a statistically significant decrease during the pandemic, and it cannot be ruled out that older patients have sought less medical attention for fear of infection.

During lockdown, the percentage of hand injuries increased in relative terms and the percentage of lower limb injuries and nasal fractures decreased. The findings could be justified by increased exposure to domestic accidents[4] and a decrease in traffic and sports accidents.[5]

Not finding any differences in the percentage of patients who received specialised care or delays in such care, suggests that no delays in specialised care derived from the protocols developed for the pandemic were identified in our centre.

As limitations of the study, it should be noted that the data were collected from an area with an average COVID seroprevalence, although much of it may be generalizable, others will vary with the prevalence of the infection.

In summary, the COVID-19 has had an impact on the number of emergencies handled by the plastic surgery department, decreasing to less than half. These data can be important for planning emergency care in possible future outbreaks, or in countries where the pandemic has not yet erupted.

Ethical responsibilities

All the authors have confirmed the preservation of confidentiality and respect for patients' rights.

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Relationship between MMR vaccination and severity of Covid-19 infection. Survey among primary care physicians[z,⋆]

Relación entre la gravedad de la infección Covid-19 y el estado vacunal. Resultados de una encuesta anónima entre médicos de atención primaria

Mr. Editor,

The first epidemiological studies about the 2019 coronavirus disease (COVID-19) highlighted its low morbidity and mortality among children and young adults. Different hypotheses have speculated on the protective effect against COVID-19 exerted by an immunity trained by different vaccines, including the bacillus Calmette-Guerin (BCG),[1] hepatitis A, polio, and measles, mumps, and rubella (MMR) vaccines.[2]

With a view to better characterize the relationship between the vaccination status and the severity of COVID-19, we designed a descriptive and observational study based on an anonymous survey administered to a population sample that included primary care physicians practicing in Madrid during the first wave of the pandemic. We would like to emphasize that this was an anonymous, confidential, unsponsored, and independent survey, which is why it did not have to be evaluated by an Ethics Committee. An invitation with a link to the SurveyMonkey® survey platform was sent to each physician via WhatsApp® between 20 April 2020 and 10 May 2020. The survey included questions about the demographics, vaccination status (MMR, BCG, and hepatitis B as a control), type of exposure, method used to diagnose infected patients, and severity of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection. The association between variables related to the vaccination status, viral infection, and severity of COVID-19 was analyzed using a chi-square test.

The information was collected from 208 survey responses provided by the participating primary care and emergency care physicians, of whom 148 were women, with a mean age of 47.15 (±9.39) years and an age range of 29–65 years. The most relevant results of the survey are summarized in Table 1.

After analyzing the results, we saw that there were no significant differences between the rate of SARS-CoV-2 infection for any of the vaccines. However, we did find statistically significant differences with respect to the severity of COVID-19 and the MMR vaccination status (p = 0.013). The MMR vaccine has been administered on a mandatory basis to all Spanish children in the context

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Table 1
Results of the statistical analysis based on the severity of COVID-19.

Infected physicians*	Severity of COVID-19				
	Mild[a]	Moderate[b]	Severe[c]	Total	*p*
n (%)	53 (77.9)	11 (16.2)	4 (5.9)	68	
Age, mean	45.7	50.2	53.5	47.1	0.134
Vaccinated against MMR, n (%)	33 (62.2)	6 (54.5)	0 (0)	39 (57.4)	0.013
Vaccinated against BCG, n (%)	26 (49.1)	7 (63.6)	3 (75)	36 (52.9)	0.592
Vaccinated against hepatitis B, n (%)	50 (94.3)	11 (100)	4 (100)	65 (95.5)	0.989

* SARS-CoV-2 detected by reverse transcription polymerase chain reaction (rtPCR) and/or positivity for antibodies IgM and IgG.
[a] Asymptomatic or mildly symptomatic case without pneumonia, exclusively receiving symptomatic treatment.
[b] Pneumonia confirmed with a chest X-ray and treated on an outpatient basis.
[c] Severe case requiring hospitalization.

of the national vaccination program since 1981. In our study, most of the physicians infected with SARS-CoV-2 who had received the MMR vaccine (67.92%) presented with mild symptoms of COVID-19. None of those who had to be hospitalized due to COVID-19 remembered having received the MMR vaccine or having been immunized against any of the viruses included in this vaccine. No significant differences were observed with respect to the severity of COVID-19 and the BCG and hepatitis B vaccination status ($p = 0.608$ and 0.911, respectively).

Some hypotheses link vaccination against MMR with an improved and faster innate immune response against COVID-19.[1–3] This fact could explain the benign course of the disease in children and those under the age of 40 in our country. Other studies state that the MMR vaccine can induce neutralizing antibodies that cross-react with other viruses.[4] Cases have been described in which patients infected with SARS-CoV-2 generate cross-neutralizing antibodies against MMR.[5]

The most remarkable limitations of this study are the low number of critically ill patients included in it and the fact that other risk factors were not analyzed in a multivariant analysis, as this was not the purpose of our research. With the publication of these results, we aim to draw the attention of the health authorities and research centers with a view for them to promote studies that will allow to confirm the existence of an association between MMR vaccination and a lesser severity of COVID-19. Until a safe and effective vaccine against SARS-CoV-2 is developed, we believe that it is justifiable to promote new studies and clinical trials that might clarify the role of trained immunity with other vaccines in the mitigation of the severity of COVID-19 and of foreseeable future pandemics caused by other coronaviruses.

Conflict of interest

The authors declare no conflict of interest.

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