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LETTER TO THE EDITOR

The impact of social distancing on conjunctivitis cases—a retrospective single-center observation report

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Key messages

- The COVID-19 pandemic has given us the opportunity to study the effect of social distancing on various infectious diseases. Besides limiting the spread of the coronavirus social distancing has led to a significant decrease of other infectious diseases. Here we show that the number of acute conjunctivitis cases was significantly reduced during the first lockdown. Our findings support the effectiveness of social distancing in combating infectious diseases.

Dear Editor,

In the end of 2019, a novel disease appeared in the Chinese city of Wuhan named coronavirus disease 2019 (COVID-19). The disease spread quickly around the world [1]. As a consequence, the Austrian Government ordered the first "lockdown", which lasted from March 16th until May 15th 2020. Shops, restaurants, hotels and schools were closed and people were ordered to stay at home except for five reasons — acute danger, necessary professional activities, necessary purchases (groceries or medication), assisting other people and outdoor activities, alone or in the company of people living in the same household.

At the department of ophthalmology of the Medical University of Graz, all appointments except for emergency cases were cancelled at the beginning of the first "lockdown". Still, all patients presenting at the department without appointment were examined at all times. Thereby, we tried to adhere to the recommendation of ophthalmological societies [2, 3].

The outbreak of COVID-19 has provided researchers with the opportunity to investigate the impact of social distancing on other common infectious diseases. One of the most common infectious eye diseases is conjunctivitis. Approximately 2% of the general population has some form of acute conjunctivitis each year [4]. Here, we wanted to examine the effect of the "lockdown" on the numbers of conjunctivitis cases presenting at our department.

We analyzed the numbers of cases by retrospective chart review. Ethical approval was waived by the local institutional review board. Acute conjunctivitis was defined as an inflammation of the conjunctiva with watery or purulent discharge. Allergic conjunctivitis was diagnosed in cases of bilateral conjunctivitis and typical concomitant symptoms like watery discharge, chemosis, itching or rhinitis. Incidence rate ratios were calculated using Poisson regression with SAS version 9.4 (Cary, NC, USA). p-values < 0.05 were considered statistically significant.

The Medical University of Graz is a tertiary referral center responsible for roughly 1 million people. So the number of cases with acute conjunctivitis in this area should be around 20,000. Most of these patients are treated by general practitioners or general ophthalmologists. Usually about 1000 patients with acute conjunctivitis present at the department of ophthalmology of the Medical University of Graz each year. The numbers of cases of acute and allergic

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Table 1 Number of cases during the "lockdown" compared with the previous year. Percentages of cases in relation to total number of patients visiting the hospital are given in parentheses. Incidence rate ratios (IRR) comparing number of cases from March to May 2020 with the same time period in 2019, 95% confidence intervals (CI) and *p*-values were calculated using Poisson regression

		Total number of patients	Acute conjunctivitis	Allergic conjunctivitis	Corneal foreign body
2019	Mar	6190	75 (1.22)	7 (0.11)	119 (1.92)
	Apr	5682	94 (1.65)	8 (0.14)	123 (2.16)
	May	6112	95 (1.55)	10 (0.16)	131 (2.14)
2020	Mar	3500	37 (1.06)	2 (0.06)	94 (2.69)
	Apr	3314	26 (0.78)	6 (0.18)	112 (3.38)
	May	5649	27 (0.48)	10 (0.18)	135 (2.39)
IRR			0.49	1.04	1.32
95% CI			0.39–0.62	0.57–1.9	1.14–1.53
p-value			< 0.001	0.90	< 0.001

conjunctivitis presenting at our department in March, April and May 2020 and in the same period in the previous year are shown in Table 1. We found a significant decrease of acute conjunctivitis cases during the lockdown, which could not be found for allergic conjunctivitis.

In order to investigate whether acute conjunctivitis cases were reduced because patients were afraid to visit the hospital, we looked at non-infectious diseases. For corneal foreign bodies, we did not find a reduction in cases but an increase (Table 1). Another Austrian study found that the ratio of patients with retinal detachment presenting directly at the hospital was not significantly altered during the "lockdown" [5]. Thus, we do not think that the reduction of conjunctivitis cases by more than two-thirds is only due to a fear of visiting the hospital.

Our observation is supported by findings in other infectious diseases. Non-pharmaceutical interventions and behavioral changes to mitigate COVID-19 have reduced influenza by almost 80% [6]. Several studies report that national lockdowns have led to a decrease on admissions for several of the most common infectious diseases among children [7–9]. Furthermore, declining gastrointestinal infections with norovirus were observed since the outbreak of COVID-19 [10]. To the best of our knowledge, this is the first report of a reduction of conjunctivitis cases.

In conclusion, we found a significant decrease of cases of acute conjunctivitis for the period of the first "lockdown", which replicates previous finding in other infectious diseases.

Declarations

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the Medical University of Graz and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Ethical approval was waived by the local institutional review board.

Conflict of interest The authors declare no competing interests.

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