Structural reorganization of the ophthalmological practice in a COVID-19 hub hospital: experience from European epicenter of the pandemic

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The current pandemic by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has put extraordinary challenges on the medical practice across all specialties, including ophthalmology. Since the beginning of the outbreak in Italy, especially in Lombardy—the most affected region—large hospital areas were reorganized to admit and assist the growing number of patients with coronavirus disease 2019 (COVID-19).[1] Furthermore, the entire elective surgical activity was suspended by a national decree.

Here, we report our experience at the Department of Ophthalmology of the San Raffaele Scientific Institute—a large tertiary referral hospital and university research center in Milan, Italy—after it has been converted into a hub facility in the management of the public health emergency.

The structural rearrangement was the result of both institutional and local departmental measures.

By institutional regulations, all the hospital buildings were subdivided into COVID and non-COVID, and their wards were consequently converted to accept appropriate patients. The general emergency department was accordingly partitioned with unconnected accesses, as to have compartmented areas. Dedicated routes were also made available for patient transportation to diagnostics and wards.

Following the above-mentioned institutional directives, the ophthalmology inpatient ward (26 beds) was included in the COVID units and all the three theaters selectively dedicated to ophthalmic surgery were converted into intensive care units (two beds per theater).

Hospitalized patients requiring surgery were unified in a single Head & Neck department, grouping neurosurgery, ear-nose-throat, and ophthalmology together. Surgical activity was also incorporated in shared theaters.

These institutional changes entailed the logistic transfer of personnel and equipment to different rooms.

A second-order intra-departmental strategy was applied for reorganization of the ophthalmic unit. The outpatient offices were kept open, but substantial changes were adopted so as to fulfill the ministerial decrees, which have been extensively described before.[2,3] Briefly, the measures adopted included (1) anticipated phone contact to check patients' medical conditions and history (e.g. travels); (2) rescheduling of non-urgent consultations; (3) general hygienic precautions: non-contact temperature measurement at check-in, interpersonal separation, personal protection equipment for both healthcare professionals and patients, public sanitizing gel stations, equipment and tool individual disinfection.

Surgical activity was remarkably cut since the end of February. All elective procedures, including cataract surgery, were suspended. Only urgencies were left, including retinal detachment, eye rupture, endophthalmitis, and ocular malignancies. Cases whose urgency was motivated by specific concurrent conditions (e.g. pediatric cataract surgery) were discussed individually with the hospital governance. Being the operating theater regarded as a high-risk area for COVID-19 infection, additional precaution measures with barrier apparels (FPP3 plus surgical mask and goggles) were strictly practiced.

The emergency room office was also equipped with plastic shields for the slit lamp and disposable goggles.

The whole structural actions progressed at the same pace with a substantial decrease in the patient request. The department routinely supplies on average per week more than 500 visits, 130 surgeries, 200 intravitreal injections, and 50 laser procedures. Appointments supply dropped to less than 10% of usual, surgeries to roughly five procedures per week (>95% reduction) and lasers accordingly only to some units.

Intravitreal injections reduced to roughly 50 per week. As per the Italian regulation, injections are not office-based, and a dedicated theater was set. For the sake of drug storage optimization and vial savings, we arranged a confirmation phone contact with any scheduled patient few days before the procedure.

The human resources reorganization deserves some considerations, too. Outstanding additional tasks were required by the new hospital asset; hence, a significant number of medical professionals (including residents and ophthalmologists) were recruited, on a voluntary base, in COVID-19 departments to face this critical care crisis, under the supervision of intensive care experts. Those serving the COVID-19 units were waived from their tasks in their respective departments, as to avoid any risk of contamination. Furthermore, they were put in the position to safely perform eye consultations to patients suspected or affected by COVID-19 when required.

The COVID-19 is a humanitarian and socioeconomic war, and our center is "in the trench." The American Academy of Ophthalmology recently published a list of urgent ophthalmic procedures considered not to be postponed or suspended.[4] In the setting of such a profound crisis, we were in the position to be even more stringent, reducing and rearranging the work we have been doing for ages in few days. We hope our experience might be of help for those who are (or may be in the future) facing such a catastrophe.

Author contributions

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Conflict of interest statement

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