The effects of COVID-19 on general cardiology in Italy

A vivid description of the pandemic effects in Italy is presented by authors from the University Magna Graecia in Catanzaro, Southern Italy

The COVID-19 pandemic in Italy

On 30 January 2020, the Istituto Superiore di Sanità (ISS) confirmed the first two cases of COVID-19 infection in Italy. On 21 February 2020, the first Italian patient with COVID-19 was diagnosed—a 38-year-old man hospitalized at Codogno Hospital in northern Italy—and, in Veneto, the first ascertained death for COVID-19 was reported in a man of 78 years in Padua.

What has happened in Italy?

The first European nation affected by the COVID-19 pandemic was Italy, which was unprepared to manage a sudden pandemic with such serious health consequences. In Italy, for reasons that are still not completely clear, the contagion was particularly widespread in the North (Lombardia, Veneto, and Emilia-Romagna), while the southern regions were substantially spared by COVID-19 (Figure 1). In Bergamo, a city of ~120 000 inhabitants, the number of infections was very high. Social isolation was probably late and incomplete due to giving priority to economic activities. A football game, Atalanta vs. Valencia, with ~50 000 spectators further aided the spread of the infection. In some northern regions, there were simply insufficient beds and non-invasive ventilators in intensive care and COVID wards.1 Territorial medicine in Italy during the COVID-19 pandemic showed a particular weakness.

Cardiologists in Italy during the COVID-19 pandemic period

Italian cardiologists have been overwhelmed in the battle against COVID-19 both because the disease has well-known cardiac involvement and because many cardiology divisions have become COVID centres, thus jeopardizing cardiological activities. In Italy, healthcare workers paid a very high price during the COVID-19 pandemic, with >160 doctors dying and many infected. Surprisingly, the World Health Organization (WHO) did not initially recommend the use of masks for medical personnel and, when these were recommended, they were simply unavailable because they were produced abroad. Initially, in Italy, the swabs were carried out only for symptomatic patients and cardiologists, and no nasopharyngeal swabs were performed on healthcare personnel in the initial phase of the pandemic, so they could have been a source of contagion themselves.

At the time of writing, Italy is in phase 2 of the pandemic, but many hospitals and healthcare organizations are still focused on COVID-19. The exceptional results that cardiology has shown in the diagnosis and treatment of cardiovascular diseases could be jeopardized if cardiological care services are not quickly reorganized.

Epidemiological data of the COVID-19 pandemic in Italy

To date, 239 706 COVID-19 cases have been recorded in Italy, of which 34 644 have died.2 As of 24 June 2020, there are 18 655 positive cases, of which 16 938 are in home isolation, 1610 are hospitalized with symptoms, and only 107 COVID patients are in intensive care. In Italy 5 107 093 swabs have been taken.3

In the Lombardy region alone, with 93 261 total cases, there was the highest number of deaths (16 608; 49% of all Italian cases) which is much more than in China (Figure 1).4 The absolute numbers of deaths by age in Italy5 are reported in Figure 2.

The reduction in hospitalizations and the increase in hospital mortality during the COVID-19 pandemic

Since March 2020, many coronary care units (CCU) beds in Italy have remained empty. Figure 3 shows a photograph taken on 14 March 2020, in the CCU of the Magna Graecia University with unusually empty beds. The Italian Society of Cardiology (SIC) has therefore carried out a survey involving 54 hospitals throughout the country to assess the impact of the pandemic on hospitalization rates and in-hospital outcomes. This study, the first to involve an entire nation, demonstrated a 50% reduction in hospitalizations for acute myocardial infarction (Figure 4) in the week from 14 to 21 March 2020 compared...
with the same week of the previous year. Similar data were reported for Italy in parallel at regional levels. The most worry- ing data were the three-fold increase in in-hospital mortality for ST-segment elevation myocardial infarction (STEMI) patients during the pandemic. It is noteworthy that STEMI patients were hospitalized late during the COVID-19 pandemic, well beyond 120 min, partially reducing the benefit of primary percutaneous coronary intervention (PCI). Hospitalization rates for other cardiovascular diseases such as heart failure, atrial fibrillation, device malfunction, and pulmonary embolism were also reduced during the pandemic period. It was interesting to observe that although the COVID-19 pandemic mainly affected the North of Italy, the reduction in hospitalizations and the increase in hospital mortality was found homogeneously throughout the national territory, including the South, which was substantially spared by the pandemic.

National healthcare system and cardiology care in Italy

The Italian national health system, founded in 1978 and based on universality, equality, and equity, has undergone the greatest stress in its history. During the last 10 years, Italy experienced linear cuts in healthcare expenditure, leading to a substantial inequality of healthcare quality standards across the national territory. Italian doctors, and cardiologists in particular, have been hardly taken into account (or even ignored) in recent years, whereas bureaucracy, legal contentions, and a lack of clear clinical governance in hospitals still have a large influence on decision-making processes. The COVID-19 pandemic was the most tragic Italian event since the Second World War.

Figure 1 Contagions in Italy by region.

Figure 2 Absolute number of deaths for COVID-19 by age in Italy.

Figure 3 The CCU of the Magna Graecia University with empty beds on 14 March 2020.
This tragedy must become an opportunity for Italy to rebuild a more efficient healthcare system, and an opportunity not to be missed for Italian Cardiology to further improve its quality.

**Conflict of interest:** none declared.

**References**

References are available as supplementary material at *European Heart Journal* online.

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**Figure 4** Number of hospitalizations for myocardial infarction and mortality rate for STEMI in Italy during the COVID-19 pandemic. Reproduced from previously published article by De Rosa S. et al. Eur Heart J 2020;41:2083–2088.