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ANMCO POSITION PAPER: The role of cardiology in the management of the health needs in the post-Covid-19 era

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At the end of 2019 a new Coronavirus appeared in China and, from there, it spread to the rest of the world. On 24th May, 2020, the confirmed cases in the world were more than 5 million and the deaths almost 350.000. At the end of May, Italy reported more than 27.000 cases among healthcare professionals and 163 deaths among physicians. The National Health Systems from almost all over the world, including Italy's, were unprepared for this pandemic, and this generated important consequences of

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organizational nature. All elective and urgent specialized activities were completely reorganized, and many hospital units were partially or completely converted to the care of the COVID-19 patients. A significant reduction in hospital admissions for acute heart disease were recorded during the SARS-CoV-2 pandemic and, in order to gradually resume hospital activities, the Italian National Phase 2 Plan for the partial recovery of activities, must necessarily be associated with a Phase 2 Health Plan. In regards to the cardiac outpatient activities we need to identify short term goals, i.e. reschedule the suspended outpatient activities, revise the waiting lists, review the 'timings' of the bookings. This will reduce the number of available examinations compared to the pre-Covid-19 era. The GP's collaboration could represent an important resource, a structured telephone follow-up plan is advisable with the nursing staff's involvement. It is equally important to set medium-long term goals, the pandemic could be an appropriate moment for making a virtue of necessity. It is time to reason on prescriptive appropriateness, telemedicine implementation intended as integration to the traditional management. It is time to restructure the cardiological units related to the issue of structural adjustment to the needs for functional isolation. Moreover, the creation of 'grey zones' with multidisciplinary management according to the intensity of care levels seems to be necessary as well as the identification of Covid dedicated cardiologies. Finally, the pandemic could represent the opportunity for a permanent renovation of the cardiological and territorial medicine activities.

Introduction

In December 2019, a new pandemic Coronavirus appeared in Wuhan, China. From there, it spread to the rest of China, to Asia, and from there to the rest of the world.

On 24th May 2020, the confirmed cases in the world were 5 371 785 and the deaths 344 815,¹ in Italy² 32 785 against the 4645 recorded in China and the 243 in South Korea. The situation in Northern Italy was particularly serious, and more recently became just as serious also in the UK (36 793 deaths), in France (28 367 deaths), in Spain (28 752 deaths), and especially in the USA (97 720 deaths).¹ On 22nd May, Italy reported 27 101 cases among healthcare professionals³ and 163 deaths among physicians.⁴

The national health systems, including Italy's, were unprepared for this pandemic, and this generated serious consequences of welfare and organizational nature, almost causing the collapse of the system itself. As an obvious consequence, all specialized activities, both elective and urgent, were completely reorganized.

An approximately 30-40% reduction in hospital admissions for acute coronary syndrome and for heart failure has been recorded during the SARS-CoV-2 pandemic. These pathologies alone represent the majority of cardiac disease admissions with a triple increase in mortality caused by myocardial infarction with ST-segment elevation.^{5,6} A significant increase in out-of-hospital cardiac arrests was reported during the same period, a phenomenon for which various explanations can be advanced.⁷

The near future will probably provide clear answers on the motivations at the basis of this phenomenon, but it seems likely that we will be facing a 'flood' of patients with subacute cardiovascular disease who, whether by

choice or for yet unknown reasons, was not hospitalized during the pandemic.

As a consequence of the Covid-19 dramatic epidemiological load, many hospital units, not only cardiological, have been partially or completely converted to the care of the SARS-CoV-2 complications, whilst all clinical activity has been drastically reduced to limit access to the healthcare facilities and dedicate healthcare personnel to the Covid-19 units. Only 14% of the cardiac rehabilitation units were maintained during the Covid-19 pandemic against the 25% that completely suspended all activities and the 61% which reduced them.⁸ Similarly, the majority of the cardiac surgery units suspended all elective activity during the emergency, focusing exclusively on urgent cases. Therefore, it will be necessary to re-evaluate the priority level of the listed not-operated patients. In view of the shortage of hospital beds in the intensive care units, the Heart Team could consider expanding the indications for the transcatheter valve procedure.⁹

In consideration of the pandemic burden on the Italian Health System, the national phase 2 plan for the partial recovery of activities, must necessarily be associated with a phase 2 health plan, in order to gradually resume all clinical and hospital activities.

Cardiac outpatient activities

Short term goals: rescheduling the suspended outpatient activities

The pandemic burden on the healthcare personnel

The scheduled outpatient activity has been suspended in all Italian regions, in particular the deferrable medical tests/examinations.

Therefore, it is likely that the major part of these activities will have to be recovered. To this regard, however, a few considerations are necessary:

due to the reduction of the clinical activity in many hospitals, a part of the cardiologists have been involved in activities related to the pandemic and all leaves of absence of the healthcare personnel, in accordance with the Prime Minister Decrees, have been suspended for months and still are. Also, the psychological burden of such a complicated situation, with the risk of infection for all the healthcare personnel (proportionally the most effected) has certainly been exorbitant; family life has been revolutionized by the fear of infecting ones loved ones, consequently causing a voluntary domestic isolation. For these reasons, in this phase, it is very difficult to ask the healthcare personnel further sacrifices to retrieve the many pending examinations, in addition to the regular workload.

Rescheduling of the medical examination ‘timing’ and revision of the waiting lists

Due to the need for social distancing in waiting rooms, of hospital facility sanitation and disinfection of medical equipment/furnishings, it will be necessary to review the ‘timings’ of the bookings. This will inevitably reduce the number of available examinations compared to the pre-Covid-19 era. A reasonable proposal would be to increase the ‘timing’ of the examinations by at least 20-25 min in respect to those normally scheduled, and distribute them over mornings and afternoons. Great importance must also be attributed to the review of the ‘suspended’ waiting lists. The General Practitioner (GP’s) collaboration, to this regard, could represent a fundamental resource to validate, modify, or cancel requests made during the lockdown, keeping in mind that medical requests can be modified only by the prescribing physician, possibly with the support of a specialist.

Homogenous waiting groups for medical examination (type U, to be dispensed within 3 days and type B, within 10 days)

In most of the Italian regions, these activities have not been suspended and so should not affect this category of priority classes. Particular attention must be given to the appropriateness of the request and its consistency with the priority class.

Homogenous waiting groups for medical examination (type D, to be dispensed within 30 days for visit and within 60 days for instrumental examination, type P, programmable, and control visit/follow-up)

The reinstatement of all clinical activities will necessarily have to be gradual, prioritizing those suspended services with shorter waiting times (type D). In addition, the activation of telemedicine services could be of enormous help to reduce the recovery load of the not yet performed services. Telemedicine could provide from simple to technologically complex and sophisticated services. However, it is improbable that where the service has not yet been activated it can be successfully set up in a short period of time.

An organized telephone follow-up plan is advisable as it would have the double advantage of identifying any early instability and to plan examinations based on the medical conditions and not based on predetermined time intervals, with a beneficial reduction of the services that would need to be provided. An active involvement of the clinical nursing staff should be considered to satisfy the elevated number of patient requests in waiting lists. The active collaboration could be based on a structured interview, updating the patient’s medical records, the appropriate sharing of the case, and possible rescheduling of examinations—in agreement with the referring physician. The nursing staff’s involvement is also necessary to help the patient to fill-in the Covid-19 questionnaire that in many Italian realities is completed over the phone a few days prior to the examination.

Therapeutic plans

A telematics programming could be conceivable for some services. For example, the GP could fill-in a similar form to the one provided by the Italian Medicines Agency (AIFA) for the renewal of the therapeutic plan and that, in addition to the specific anamnesis and the required blood tests, could be submitted to the referring cardiologist for the renewal of the treatment plan. Alternatively, it would be feasible to allow GP’s to directly renew the treatment plans. This proposal must of course take into consideration the position of both the regions and AIFA.

Oral anticoagulant therapy supervision

An intense monitoring activity of the oral anticoagulant therapy takes place in many cardiological units. In order to reduce access to the hospital for coagulation tests, a switch to direct oral anticoagulants, if not contraindicated, should be considered for those patients with atrial fibrillation and venous thromboembolism in treatment with vitamin K antagonist.

For those patients for whom the vitamin K antagonist therapy is indicated, the use of portable coagulometers with the self-measurement international normalized ratio should be encouraged.

The monitoring of patients with implantable devices (pacemakers, defibrillators, loop recorders)

These Covid-19 pandemic times should be seen as an opportunity to implement remote monitoring of pacemakers, defibrillators, and loop recorders, that in some realities are still very underused, mainly due to reimbursement issues and to the privacy data legislation.

The staged rescheduling/reopening of cardiological outpatient activities

Notwithstanding the regional and hospital regulations, it will probably be necessary to establish the priorities for rescheduling cardiological outpatient activities. The general criteria would be to follow the timing of the previous appointment, starting with the examinations with the shortest estimated waiting time (presumably for the most part type D) while in the presence of possible instabilities,

the only solution is to change the booking type class with the GP's involvement.

Social distancing in cardiological surgeries and the number of exams

The topic of social distancing will probably be subject to regional and hospital regulations that take into account the specific structural and organizational features. An important topic, although very much disputed, could be a national time reference document associated with each single exam and which considers, in this particular phase, the need to avoid crowded waiting rooms. The 'codified' time reference document would help avoid, with both the hospital and colleagues, all the issues regarding the estimated number of exams provided and the homogenization of these in respect to the workforce capacity. Once and for all, it would be possible to determine what can be done with what is available.

A working hypothesis, which has already been activated in some realities, is the definition of the number of patients allowed inside the facility (usually a third of its capacity so as to guarantee social distancing) and the presence of a 'welcome filter' managed by the nursing staff. The nursing staff besides monitoring the number of patients, assisting the patient in completing, and signing the 'Covid-oriented' questionnaire, which must be completed before entering the facility also verifies the required safety dispositions (disinfection, facemasks, etc.).

Make a virtue of necessity: it is time for prescriptive appropriateness

The moment is particularly delicate, and what can be planned during an emergency could become a beneficial organization, maintained over time. Prescriptive appropriateness is a topic addressed to all the categories involved, and now takes on a more decisive role than in the past, since it reduces the risk of useless exposure in high-risk environments and handles the inevitable reduction of the number of provided services—in accordance with the necessary preventive contamination regulations. Simple software, which has already been used in clinical observational studies, are able to guide the prescriptive appropriateness in an extremely reduced amount of time. A software, through a simple algorithm based on scientific evidence, is able to confirm the appropriate indication of echocardiograms, provocative tests, and dynamic Holters electrocardiogram. The possibility to allow only cardiologists to request second level cardiological exams has generated many debates. A Copernican revolution extended nationally and currently already active in some regions, that would confer the possibility to prescribe further examinations, after the first visit indicated by the GP, to the specialist, could produce the double advantage of reducing the provided services and guaranteeing the taking in charge of the patient. This would be subject to the need for training and updating of the specialists.

Following this health emergency, it would be very important to take this opportunity to apply a paradigm shift with the transition at national level, from the logic of the exam

(very often not appropriate) to that of the taking charge of the patient.¹⁰

Telemedicine implementation

The impact of telemedicine on society and healthcare is well known and the experiences, at both national and local levels, are now numerous. Even the Civil Protection in the area of its disaster expertise has developed telemedicine models and furthermore the Chronical National Plan strongly recommends its use. Many are the offered benefits: equal access to the healthcare system (for example for patients in difficult to reach areas), improvement of quality care and the guarantee of the continuity of care, maintenance, and improvement of the efficacy parameters, efficiency, appropriateness, expenditure reduction, continuity of care contribution and hospital-territory integration, less necessity to transfer fragile, and often elderly, patients. The telemedicine operative modalities are numerous (teleconsultation, health tele-cooperation), to tele-health (especially in primary care), to tele-assistance addressed to elderly and fragile persons. The impact of telemedicine on the organization of health systems are quite defined.¹¹ It is even more important, in these times, that healthcare reaches out to the patient and not vice versa, that access to health facilities must be reduced to avoid the risk of infection, and that continuity of access to healthcare must be guaranteed. For these reasons, telemedicine, through different operative modalities, can guarantee an efficient and inexpensive care maintenance and would be a priceless asset to be preserved over time. Another interesting and current aspect is the possibility that is emerging in some areas of our country. Some platforms allow home-patient monitoring and can also be used for multidiscipline sharing of the case, with the definition of a 'case manager' thus allowing a global management and clinical issue sharing. This reduces the redundancy of examinations and tests and consequently reduces hospital access, which is currently an issue of great interest. A systematic approach that these not strictly clinical issues can be achieved under the impulse of telemedicine and tele-cardiology, is intended as integration and not as an alternative to the traditional management.¹²

Restructuring the cardiological units

The issue of structural adjustment to the present and future needs for isolation

The SARS-CoV-2 pandemic has especially highlighted the need in many hospitals for precautionary hospitalizations in single rooms while awaiting to perform the appropriate diagnostic tests (swab, serology). Many cardiac intensive care units are currently structured in open space environments or partially communicating rooms. The issue is of primary importance considering that patients with cardiac diseases cannot wait for the results of the diagnostic tests (at least not until the availability of rapid tests) before being admitted and treated in the appropriate environment. It could be hypothesized, in a phase in which the pressure on healthcare facilities decreases, to redesign the structure of cardiac intensive care units, foreseeing a few single rooms, with remote surveillance and negative-pressured,

or with autonomous ventilation for hospitalized patients waiting for the swab result.

The issue of hospital beds: the need for isolation and the increase in cardiological hospitalizations

Facing the problem of available hospital beds in hospital wards is urgent, considering the 'safety' priority that in many wards has triggered the precautionary isolation of many hospitalized patients, basically halving the number of available hospital beds. A significant increase in hospitalizations is already perceptible in cardiological environments, and necessarily the strict and legitimate safety protocol will have to be eased otherwise it will be impossible to admit patients with acute cardiovascular disease. Substantially, it will be necessary to take into account a slight risk increase in admitting 'infected' patients to non-Covid wards in order to guarantee hospitalization to all who need it. The crucial point will be represented by the time it takes for the swab results, which will have to be rapid, otherwise the price to pay will be a shortage of hospital beds due to 'functional isolation'.

Creation of 'grey zones'—multidisciplinary management structured according to the intensity of care levels

The necessity to maintain over time (not definable) the so-called 'grey zones' raises the issue of whose is the clinical responsibility of these patients. Patients in need of the most diverse specializations and in extremely diverse clinical conditions could refer to these grey zones, conditions, which could go from a simple fever to a patient with an acute pathology in an emergency. It would therefore be appropriate to provide for, exclusively for this specific activity, a multidisciplinary management area (Emergency Room physician, internist, cardiologist, pulmonologist, infectious disease physician, nephrologist, and neurologist) organized according to intensity of care level where suspect Covid patients can wait for the diagnostic tests without being directly admitted to the wards. This specific form of organization would avoid the many specialized consults and protect the wards from patients who have not yet completed the tests to exclude Covid-19. All services between the Covid zone and the not-Covid zone must be well managed by the healthcare personnel, so as to avoid any risk of spreading the infection.

Cardiological day-hospital

In the last decade, in many regions, the cardiological day-hospital has been subject to downsizing and to a lack of recognition, even economical, of its function. In this phase, the implementation of this function would be extremely important with the allocation of dedicated resources, to reduce all ordinary hospitalizations and perform all those complex examinations not executable in day service.

Covid cardiology: necessary, how many, what must they do?

One of the many issues that the pandemic has raised is where to hospitalize acute cardiac disease Covid-19 patients. Many organizational models have been adopted but the safe and effective treatment, both for the patients

and for the healthcare personnel, can only be in Covid Cardiology Units, at a provincial or regional level, according to the different geographic and demographic realities.

The opportunity for a permanent renovation of the cardiological and territorial medicine activities

If it is in any way possible to find something positive in a tragedy that has affected all of humanity, it is the permanent renovation of cardiological activities that take into account telemedicine, prescriptive appropriateness, and the reduction of hospital access to patients that could be managed or treated locally. Change usually follows great tragedies. Let's not miss this opportunity.

The focal point is that we must not be led astray by the idea that we can do without Cardiology Units, as currently structured, exploiting the Covid-19 era; Cardiology as a primary specialized branch responds to the complex health needs of patients, it is unreplaceable with mere 'services' or 'consults'.¹²

The quality of care, from which inevitably depend on positive outcomes, needs trained and competent physicians and healthcare personnel not easily replaceable. Obviously, this pandemic is teaching us that care models can be modified, and especially that they must be agile and open to innovation. From this point of view, cardiology has always been a step ahead of time and will be again this time, capable of rising to the challenge. It is not possible to wait any longer. Hospital-territory integration, a topic, which has been debated for years, is a crucial issue. The moment has come to decide to increase local activities in a way that hospital-territory integration becomes a reality and does not remain simply an issue to discuss at conferences.

Data availability

The data that support the findings of this study are available from the corresponding author, AM upon reasonable request.

Disclaimers

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