Brief Report

Are we on the right way after 200 days of COVID-19 in Morocco?

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Abstract

Historically, 2020 will be remembered as the year of COVID-19 pandemic, that limited people move and their social habits. This virus, becomes the first daily tracked public health burden that leads to more than 1,2 million deaths in the World by the end of October 2020, and until now no countries' best control strategies are cited as the example of long term success.

Since March 2nd, 2020, date of the first SARS-COV-2 detected case in Morocco; many decisions were adopted as COVID-19 control strategies. If the first period of COVID-19 noticed a few numbers of cases and deaths, the second half from July is marked with an exponential increase of the number of cases and a spread in almost all provinces with more intensive care needs and more deaths.

The policy analysis approach was followed as a method to define the pitfalls themes and to compare with the updated available international information any significant similarities or divergences. Thus, this report has the aim to present an overview of how the COVID-19 pandemic was dealt in Morocco during these 200 days, by highlighting some discrepancies with corrective advice provided in the first version of the manuscript to be confronted by a Moroccan health policymaker's community, then to notice the decisions adopted during another one month by the MoH to get better future control results against COVID-19.

Unfortunately, despite the MoH decision to increase the diagnostic facilities for molecular tests, the overall number of laboratory tests do not go further than 21000 tests per day. The actual insidious transmission is a dangerous blind threat that dissipates the collaborating efforts, due to this limited number of confirmation and follows up tests.

Accurate, standardised and up to ten times per day tests of molecular biology represented by RT-qPCR, to interpret results following the time progress of cycle quantification values is the primary action to be done to enhance the overall control strategy.

Keywords: COVID-19; SARS-CoV-2; RT-qPCR; Control strategy; Morocco

Background

The new emerged infectious disease, SARS-CoV-2 has the worldwide interest due to the world speed of contagiousness, and deathly issue for some affected persons without any effective vaccine or internationally specific treatment to stop the spread, leading to many questions around this virus.

Morocco, as a North African country, faced this disease from last March that brings massive economic, social, educational, managerial and health uncertainties in different strategic sectors. On September 18th, 2020, after exactly 200 days from the first COVID-19 notification in Morocco,18819 active cases were under treatment from 97264 total cases detected after doing more than two million tests (Real-time PCR or serological IgG/IgM rapid tests). Severe and critical cases created more needs of intensive care (264 severe and 41 critical cases were hospitalized in that day). The mean per-day' deaths during September were 33[25-43], and the overall deaths were 1755.

To address the unwanted increase of deaths and new cases of COVID -19, the Ministry of Health (MoH) updated the control strategy on September 2nd. The adopted hypotheses are: Asymptomatic cases are not contagious, COVID-19 can lead to good herd immunity, The overall COVID-19 deaths are under control with a low rate compared to the developed countries, and an effective vaccine could be available soon. **Figure1** include the conceptualisation of this control strategy as cited on the MoH decision n°69 on September 2nd, 2020. This report aims to analyse some crucial MoH COVID-19 control strategy decisions, highlight any controversial points with the available scientific evidence and document the corrective measures to limit any gap about what was done and what is recommended to do for the same targeted decisions.

Method

A policy analysis approach was made following the overall recommendation of *Patton&al* [1].

The authors, of the referenced basic methods of policy analysis book, resumed the need for quick policy decisions, to policy analysts and planners to help to improve the quality of decisions by providing quick, accurate and timely analyses[1].

For this work, the point start was the creation of a graphic (Figure1) to resume and communicate all the information available on the analysed Ministerial decision organising the COVID-19

control strategy in Morocco. Then, the word cloud was used to extract all sounding words (Figure 2). For each group of words selected, memos were linked to them. Each memo was appropriate to add the thematic meaning from the words, the problematic situation, and any associated comments. For each problem and based on the review of the literature, other quick decisions were proposed from benchmarkable decisions or identified alternative comparisons with the real world or with ideals. All proposed new or known decisions should respect the technical feasibility and political viability.

The last stage of this method is the confrontation of the full first version of the manuscript, that include the results and their analysis, to an influencer social media group. The latter is composed of health policymakers and active members of the community, who studied mainly health administration, hospital management, field epidemiology and health programs at the MoH national public health school. To document the decisions change adopted during the thirty coming days (until October 24th, 2020), with taking into account the "No action (Status Quo)" as a practical decision. All other partial or complete MoH decisions changes were noticed into the second version of this manuscript.

Results and discussion

Firstly, COVID-19 case management was mainly based on the clinical assessment of probable cases, with rare RT-PCR confirmation. Stopping the systematic use of the RT-PCR was justified by the long time needed to get the results, that impact starting the treatment, increase the risk of complications, increase the death probability, and prolong the spread of the virus. In contrast, the agreed recommendations consider molecular diagnostic as a useful tool for COVID-19 case management[2]. Additionally, COVID-19 PCR trademarks used for some confirmations, showed only qualitative binary results, leading to a lack of accuracy by not interpreting the cycles quantification value[3]. However, during the month following the diffusion of the first version, the MoH took the decision to prioritise doing RT PCR again for all hospitalized and suspected patient and allowed all private laboratories, responding to quality and safety criteria, to do both the point of care and the molecular COVID-19 tests. Unfortunately, a small number of laboratories in Morocco seem to be able to do such analysis with respect of the good laboratories' practices. Which arise another biggest question about what kind of private laboratories should we have.

Secondly, MoH decision defines clinically asymptomatic cases as the ones without any clinical symptoms, in contact with another symptomatic case, or living in an epidemiological cluster, or being a health-care worker in COVID-19 environment. Thereby, for almost any symptom like the COVID-19 ones, many healthy persons could be considered holders of this disease and increasing false-positive errors. However, as another measure taken during the month following the diffusion of the first version, anyone now could seek the state of positivity by doing a RT-qPCR with no longer mandatory notification based only on clinical bases.

The interest of an accurate molecular PCR is now well understood and practised with the help of the private laboratories for whom they can pay the costs of the diagnostic tests. While the MoH is doing molecular tests to control the spread of disease in health facilities, schools and universities that are now plenty functional with almost all industrial and trade sectors.

Thirdly, The declaration of "heling" remains doubtful, due to not respecting the use of RT-qPCR or other diagnostic tools to confirm the negativity by an objective viral load clearance. Thus, the false 'post-treatment' negative cases will be more frequent and could sustain the virus spread in the contacts. Unfortunately, the considerable increase of symptomatic cases in many parts of the country, and the unpredicted unuse of the software tracker "Wiqaytna" intended to monitor all nearest contacts of positive cases by activating Bluetooth phone tool, lead the local health authorities to do not be able to follow all contacts of asymptomatic cases or false-negative post-treatment cases. Consequently, only patients who decide to ask for help after getting symptoms are now followed with their contacts. While the societal reject to use "Wiqaytna" software, need more investigation.

Fourthly, the MoH believed in the effectiveness of Chloroquine or Hydroxychloroquine as first-line treatment with or not an association to azithromycin and extended its use for almost all in-houses and in-hospital probable's cases, severe and critical patients. However, during the month following the diffusion of the first version of this article, the MoH explained well that this medication is not a specific treatment against COVID-19 but help for limiting contagiousness. Also, the MoH invited some patients to take the medication directly from primary health centres and fostered the presence of all adjuvant therapies in all private pharmacies. The treatment in the hospital was also adapted, based on the new insights that the anticoagulants and steroids present benefices against COVID-19 severe hospitalised cases.

Fifthly, clinical presumptions with no accurate diagnostic confirmation, lead to COVID-19 false-positive patients notification, particularly dangerous in some groups (older people, diabetes, High blood pressure, morbid obesity…) that could be hospitalized near other patients developing moderate symptoms marked principally with getting pneumonia or other high viral positive COVID-19 patients.

The in-rooms hospital, without negative-pressure conditions, will spread COVID-19 infectivity between the shared patients' rooms, in addition to the inherent risk of nosocomial transmission of coronavirus[4,5]. Meanwhile, the MoH highlighted the awareness of the intrahospital contamination and nosocomial contagiousness, mainly due to the increase of the critical cases needing intensive care and the increase of health professionals first line (nurses, doctors and professors) who died unexpectedly in both private and public facilities.

Sixthly, international evidence notices that the maximum risk of contamination happens within the family members at home and is proportionated to the viral load range[6]. Unfortunately, the local authorities cannot follow all asymptomatic cases due to the speed of spread and the logistic limits. Thus, many asymptomatic cases are living with their house families sustaining the disease with cases depending on the full number and movement of the super spreader asymptomatic persons. Coronavirus super-spreaders people are generally the silent asymptomatic ones that are the origin of the fatal infection for their vulnerable contacts [7]. However, we cannot take as an explanation of any momentary change in incidence, the absence or a limited number of super-spreaders people in an area, the contribution of the COVID-19 herd immunity and the duration of the acquired individual immunity after being affected, that are not yet well defined. [8].

Seventhly, the MoH used instead of the PCR tests; the serological IgG/IgM COVID tests to follow the prevalence of the disease into each endemic area, with the hypothesis that the most recent symptomatic cases will get IgM positivity. Then, the negativity of this test could lead to false-negative COVID-19 patients; while in the literature, serological tests become truly positive after at least ten to fourteen days of the infectivity[9]. Now, rapid tests are used during or at the end of the treatment. In contrast, PCR is theoretically suggested in the first intention to confirm the diagnostic.

Finally, more efforts are needed to target the collective behaviours to respect physical distancing, to avoid rush hours and all temporary gatherings events with integrative management of the psycho-emotional and economic supports of patient and health professional

families. Similarly, strengthening communication and responding timely to public COVID-19 matters, by the presence of permanent and mobile health teams in all affected neighbourhoods supported by volunteers and community networks to implement quick and systematic isolation and follow-up of all contacts and patients noticing the smallest range of cycles quantification in PCR are the new actions to make a difference. This diagnostic effectiveness could be enhanced by associating chest tomography, sensitive stools exams and COVID-19 point of care tests in a dynamic diagnostic decision tree (forthcoming article). Additionally, sustaining strict control of international travellers could avoid the risk of new emerging and gene-modified SARS-CoV-2 re-introduction.

The authors are aware that the two principal limitations of this report are the lack of any information about the cost-effectiveness linked to each policy decision. Indeed, the cost of each decision, cannot be prioritised without a cost-effectiveness analysis, including the primary three outcomes on politic. Namely, 1) the human lives' lost with DALY or QALY if long term invalidities due to this disease; 2) the direct and indirect costs of the selected technical decisions, 3) and the acceptability of the proposed decisions by guarantying the maximum level of health professionals' safety and patients' diagnostic and treatment qualities. In addition to the Moroccan context of decision making that remains complex, surrounded with temporalities and without real full autonomy, as explained in a recent article [10]. However, the insidious COVID-19 inter-human transmission continues the spread in Morocco, and lead to more complicated severe and critical cases, that appear daily. Unsatisfactory statistics remain noticed in the country. Indeed, on October 24th, 2020, 30834 active cases are under treatment from 194461 total cases. The mean per-day' deaths during the last month increased to 43[28-73], contributing to overall deaths of 3255 which need an urgent new strategy including new pieces for the decision-making chessboard that can help to reach the desired victory before the progress of the winter season.

Conclusion

To target all suspected COVID-19 patients, up to ten times tests per day need to be done. For that, an urgent reimplementation of PCR diagnostic, standardisation and multiplication of public and private laboratories performing those tests, with the use of quick and accurate Molecular quantitative RT-PCR kits and reagents to define the indirect viral load range in each result should be prioritized by the Moroccan health policymakers, or they could decide as a strategic priority to wait for a SARS-CoV-2 vaccine sustained by seasonal vaccination.

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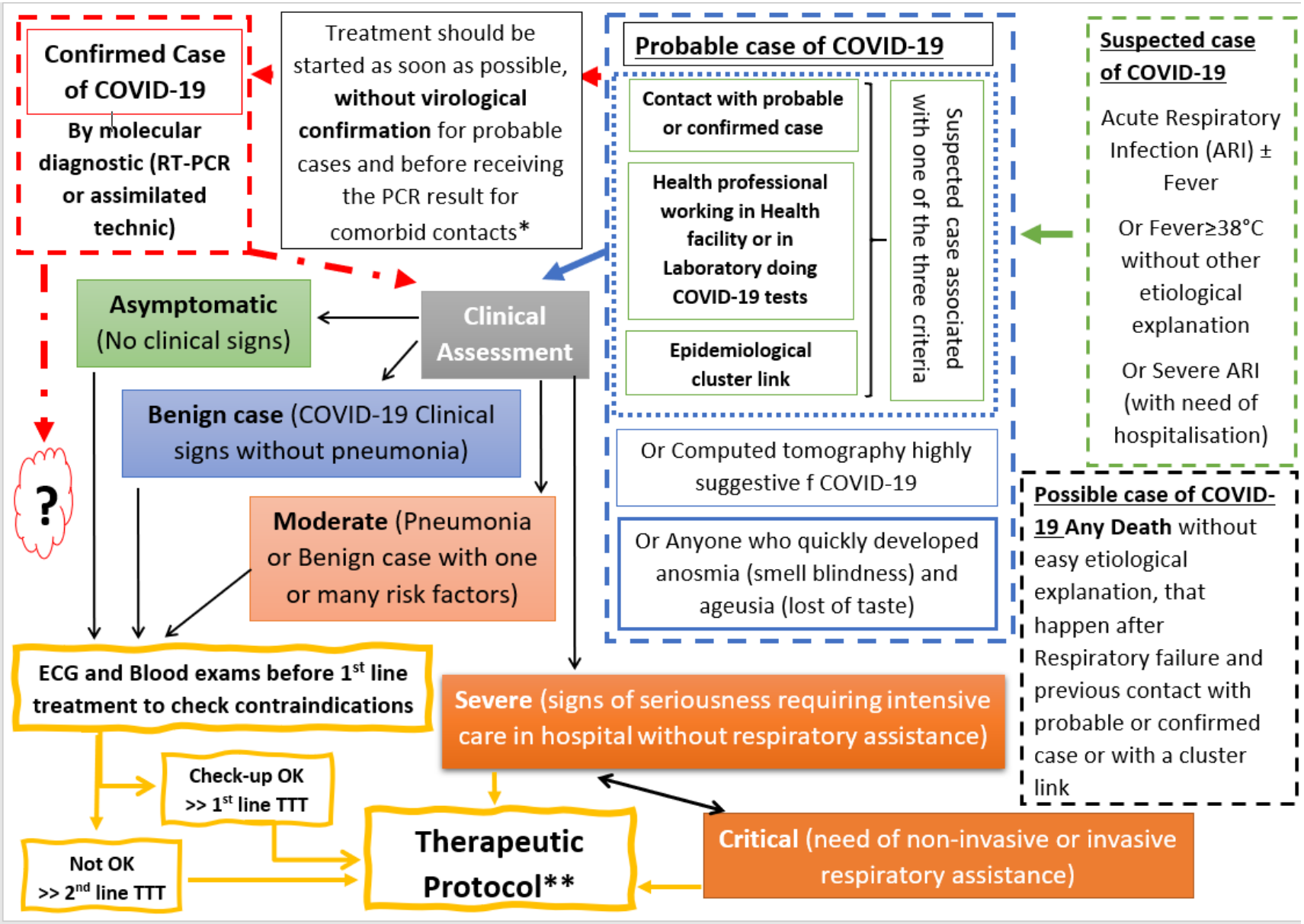

(*) Waiting for the RT-PCR result to start the treatment (TTT) lead to an increase in the risk of complications, to increase the death probability, to prolong the spread of the virus.

(**) first intention TTT based on Chloroquine 500 mg two times per day or Sulphate of Hydroxychloroquine 200 mg three times per day. With association to Antibio-therapy (Azithromycin 500 mg in day1, then, 250 mg per day from day 2 to day 7). The antibiotic therapy is not systematic, just provided if there is a bacterial sur-infection. The symptomatic TTT depending on the clinical state of the patient. The 2nd line TTT is the association Lopinavir/Ritonavir 400 mg twice a day for ten days.

The Asymptomatic cases take the 1st line treatment for seven days; then, they continue isolation until day 14. The asymptomatic case is declared recovered after seven days of treatment without the appearance of any COVID-19 symptoms.

The symptomatic cases take the 1st line treatment for ten days with isolation for a total of 14 days. The duration of treatment could be prolonged for five additional days before switching to the 2nd line treatment. The symptomatic case is declared recovered after ten days of treatment with the absence of any clinical sign or fever after three consecutive days.

The hospitalization is dedicated to all asymptomatic or symptomatic benign cases with many risk factors, the moderate, severe, and critical cases. Alternatively, the benign cases managed initially in-house without any improvement during ten days of treatment.

The managed cases in-house are dedicated to all asymptomatic or symptomatic benign cases without risk factors. The nearest Health centre providers should regularly follow the case to detect quickly any TTT side-effect or health state worsening. Transfer to the hospital will be done for cases with worsening clinical states. Or, if no improvement after ten days of treatment provided for symptomatic benign cases.

Figure1: The Moroccan update of SARS-CoV2 infection case definition and the COVID-19 case management protocol (MoH decision n°69 on September 2nd, 2020)

Figure 2: Selected word cloud