Management of SARS-CoV-2 infection: recommendations of the Polish Association of Epidemiologists and Infectiologists

Annex no. 1 as of June 8, 2020

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To the editor Due to new data from the literature and accumulated experience, it became necessary to implement some changes in recommendations for management of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection published by Polish Association of Epidemiologists and Infectiologists on March 31, 2020.[1] Changes include both primary and supportive therapy in particular stages of the disease (TABLE 1 on the next page). They are first of all a consequence of remdesivir registration by the United States Food and Drug Administration and European Medicines Agency that resulted in the recommendation to use this medication at an earlier stage of the disease.[2-4] In the recommendations of March 31, 2020 we included chloroquine and hydrochloroquine in the primary therapy, which was a result of no alternative registered therapeutic options and expected new data supporting effectiveness of these drugs. Due to lack of such data, these medications are listed in this annex as a supportive therapy, which is in accordance with the current summary of product characteristics for chloroquine in Poland.[5] Additionaly, this annex includes convalescent plasma and low-molecular-weight heparin as a possible supportive therapy.[6,7] There is still no sufficient data supporting use of azithromycin, favipiravir, ruxolitinib, oseltamivir, opaganib, and verdinexor in the treatment of patients with SARS-CoV-2 infections, so we do not recommend the use of these medications.

SUPPLEMENTARY MATERIAL

Supplementary material is available at www.mp.pl/paim.

ARTICLE INFORMATION

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CONFLICT OF INTEREST None declared.

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REFERENCES

1 Flisiak R, Horban A, Jaroszewicz J, et al. Management of SARS-CoV-2 infection: recommendations of the Polish Association of Epidemiologists and Infectiologists as of March 31, 2020. Pol Arch Intern Med. 2020; 130: 352-357.

2 Beigel JH, Tomashek KM, Dodd LE, et al. Remdesivir for the treatment of COVID-19 - preliminary report. N Engl J Med. 2020 May 22. [Epub ahead of print].

3 Food and Drug Administration issuance of emergency use authorization for potential COVID-19 treatment. https://www.fda.gov/media/137564/download. Published May 1, 2020. Accessed June 8, 2020.

4 European Medicines Agency. Summary on compassionate use for Remdesivir Gilead (updated). https://www.ema.europa.eu/en/documents/other/

TABLE 1 Recommended therapeutic management in particular clinical stages of SARS-CoV-2 infection including the primary and supporting therapy

Stage of the disease	Primary therapy	Supportive therapy
Asymptomatic or mild	No need	Symptomatic
Stable	• **Remdesivir**, administered intravenously once a day with a loading dose of 200 mg and later maintenance dose of 100 mg for 5–10 days, **or** (if remdesivir is not available) **lopinavir/ritonavir**, administered orally in a dose of 400/100 mg every 12 hours for up to 14 days	• **Chloroquine**, administered orally usually in a dose of 250 mg (in justified cases, 500 mg) every 12 hours for 7 to 10 days (no longer than 10 days) **or hydroxychloroquine**, administered orally with a loading dose of 400 mg every 12 hours and maintenance dose of 200 mg every 12 hours for 10 days. • Convalescent plasma • Low-molecular-weight heparin[a] • Antibiotics if necessary • Symptomatic treatment
Unstable	• **Remdesivir**, administered intravenously once a day with a loading dose of 200 mg and later maintenance dose of 100 mg for 5–10 days, **or** (if remdesivir is not available) **lopinavir/ritonavir**, administered orally in a dose of 400/100 mg every 12 hours for up to 28 days plus • **Tocilizumab** (in patients with elevated IL-6 concentration) administered intravenously in a dose of 8 mg/kg of body weight (maximally 800 mg) in a single dose (a 1-hour infusion). In the absence of improvement, the second dose may be repeated after 8 to 12 hours.	• **Chloroquine**, administered orally usually in a dose of 250 mg (in justified cases, 500 mg) every 12 hours for 7 to 10 days (no longer than 10 days) **or hydroxychloroquine**, administered orally with a loading dose of 400 mg every 12 hours and maintenance dose of 200 mg every 12 hours for 10 days. • Convalescent plasma • Low-molecular-weight heparin[a] • Antibiotics if necessary • Symptomatic treatment • Oxygen therapy • Intravenous rehydratation
Critical condition (ARDS)	• **Remdesivir**, administered intravenously once a day with a loading dose of 200 mg and later maintenance dose of 100 mg for 5–10 days, **or** (if remdesivir is not available) **lopinavir/ritonavir**, administered orally in a dose of 400/100 mg every 12 hours for up to 28 days plus • **Tocilizumab** (in patients with elevated IL-6 concentration) administered intravenously in a dose of 8 mg/kg of body weight (maximally 800 mg) in a single dose (a 1-hour infusion). In the absence of improvement, the second dose may be repeated after 8 to 12 hours.	• Mechanical ventilation • Extracorporeal membrane oxygenation in the case of refractory hypoxemia, independently of invasive mechanical ventilation • Convalescent plasma • Low-molecular-weight heparin[a] • Antibiotics if necessary • Symptomatic treatment • Oxygen therapy • Intravenous rehydratation Glucocorticosteroids: **methylprednisolone** administered intravenously in a dose of 1 mg/kg of body weight per day for 5 days, later 40 mg per day for 3 days, next 10 mg per day for 2 days, **or dexamethasone** administered intravenously in a dose of 20 mg per day for 5 days, later 10 g per day for 3 days, next 5 mg per day for 2 days.

a Low-molecular-weight heparin in prophylactic or therapeutic doses according to the general rules for the management of thromboembolic complications

Abbreviations: ARDS, acute respiratory distress syndrome; IL-6, interleukin 6

summary-compassionate-use-remdesivir-gilead_en.pdf. Accessed June 8, 2020.

5 Arechin – Summary of product characteristics. http://www.urpl.gov.pl/sites/default/files/Arechin%20Charakterystyka%20Produktu%20Leczniczego.pdf. Accessed June 8, 2020.

6 Tang N, Bai H, Chen X, et al. Anticoagulant treatment is associated with decreased mortality in severe coronavirus disease 2019 patients with coagulopathy. J Thromb Haemost. 2020; 18: 1094-1099.

7 Ye M, Fu D, Ren Y, et al. Treatment with convalescent plasma for COVID-19 patients in Wuhan, China. J Med Virol. 2020 Apr 15. [Epub ahead of print].