GUIDELINES FOR ASSESSMENT AND MANAGEMENT OF COVID-19 IN PREGNANT PATIENTS

Version 1

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TABLE OF CONTENTS

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- Dr. Nighat Aftab, Consultant Obstetrics and gynaecology, Latifa Women and Children Hospital.
- Dr. Taghrid F. Elgergawi, Consultant Internal medicine, Latifa Women and Children Hospital.
- Dr. Komal Hazari, Specialist Internal Medicine, Latifa Women and Children Hospital.
- Dr. Sofia Malik, Senior Specialist Registrar, Latifa Women and Children Hospital.
- Dr. Iman Zein Alkiumi, Specialist Registrar, Latifa Women and Children Hospital.

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- Dr. Rasha Buhumaid, Assistant Professor of Emergency Medicine at Mohammed Bin Rashid University of Medicine and Health Sciences.
- Dr. Hanan Obaid, Director, Health Policies and Standards Department, Health Regulation Sector.
- Dr. Rupali Bindra, Senior Clinical Auditor, Health Policies and Standards Department, Health Regulation Sector.

Dubai Health Authority

DEFINITIONS

COVID-19: is Confirmed infection with SARS-CoV-2.

ABBREVIATIONS

ALT	:	Alanine transaminase
AST	:	Aspartate aminotransferase
BNP	:	B-Type natriuretic peptide
COVID-19	:	Corona Virus Disease 2019
CRP	:	C-reactive protein
CTG	:	Cardiotocography
ECG	:	Electrocardiogram
FGR	:	Fetal growth restriction
GA	:	General anaesthesia
IPC	:	Infection prevention and control
IV	:	Intravenous
LDH	:	Lactate dehydrogenase
MDI	:	Metered dose inhaler
O2	:	Oxygen
RR	:	Relative risk
VTE	:	Venous thromboembolism

1. BACKGROUND

Novel Corona virus (SARS-CoV-2) is a new strain of corona virus in humans, first identified in a cluster with pneumonia symptoms in Wuhan city, Hubei province of China. Recently new strains are emerging from different countries with more virulence. Safe care of women with suspected or confirmed COVID-19 and the reduction of onward transmission is critical. Women may experience mild or moderate cold flu like symptoms. Comorbidities including diabetes, cancers, lung disease, BMI > 25 Kg/m2, age > 35, low socioeconomic status, Black and Asian backgrounds may cause presentations with pneumonia and more severe symptoms. Maternal COVID-19 infection associated with increased risk of cesarean section births. The effects on the fetus include a 2–3 times greater risk of preterm birth which is usually iatrogenic. There are proven adverse effects on fetus or neonates other than 2-3 times greater risk of prematurity which is usually secondary to iatrogenic causes.

2. SCOPE

2.1. To ensure the safe and efficient management of pregnant patients with COVID-19 in health facilities.

3. PURPOSE

3.1. Ensure safety of the pregnant patient.

3.2. Ensure that there is a standardized protocol for relevant healthcare professionals to deal with pregnant patients, depending on the severity of the illness.

4. APPLICABILITY

4.1. DHA licensed Healthcare Professionals providing Obstetrics and Gynaecology services.

4.2. DHA licensed Health Facilities providing Obstetrics and Gynaecology services.

5. RECOMMENDATION ONE: ASSESSMENT OF COVID 19 IN PREGNANT PATIENTS

5.1. All COVID-19 pregnant patients who arrive at the Emergency Department shall have to undergo the following routine assessment and baseline investigation (for flowchart refer to **Appendix 1**):

5.1.1. Full blood count

5.1.2. Renal function tests and electrolytes

5.1.3. Random glucose

5.1.4. Liver function tests including ALT/AST

5.1.5. CRP

5.1.6. D- Dimer

5.1.7. Chest x-ray

5.2. The patient must meet the admission criteria for COVID-19 which are as follows:

5.2.1. Shortness of breath, distressed, dyspnoea or bad cough

5.2.2. Chest pain/ heaviness/tightness (not related to coughing)

5.2.3. Haemoptysis

5.2.4. Persistent fever > 38ºC (despite antipyretics) or > 3 days

5.2.5. RR > 20

5.2.6. Heart rate > 110bpm

5.2.7. O_2 Saturation < 95%

5.3. If the pregnant patient meets the above COVID-19 criteria, additional Investigations should be requested, which are as follows:

5.3.1. Procalcitonin

5.3.2. HbA1c (if diabetic)

5.3.3. LDH

5.3.4. Ferritin

5.3.5. Coagulation profile, fibrinogen

5.3.6. Troponin, creatinine kinase

5.3.7. Pro BNP

5.3.8. ECG if indicated.

NOTE: Management is based on the severity of the illness.

5.4. If the pregnant patient does not meet the above COVID-19 criteria the patient should undergo basic management, as follows:

5.4.1. IV Line

5.4.2. IV fluids (if indicated)

5.4.3. Symptomatic treatment (antipyretics, antiemetics)

5.4.4. Bronchodilators (If indicated) metered dosed inhaler (MDI) is preferred

5.4.5. VTE risk assessment **Appendix 2.**

5.5. Discharge a pregnant patient who has concerning symptoms but does not meet the admission criteria. Discharge if there are no obstetrics concerns and provide information

leaflet with clear return instructions (red flags). Schedule a reassessment follow-up in 48-72 hours.

5.6. Discharge a pregnant patient who is asymptomatic or has mild symptoms, if there are no obstetrics concerns and provide information leaflet with clear return instructions (red flags) **Appendix 3**.

5.7. After recovery from COVID-19 pregnant patients should:

5.7.1. Be monitored for signs of FGR during remainder of pregnancy

5.7.2. Undergo a growth scan in 2nd trimester

5.7.3. Undergo a serial growth scan in 3rd trimester

5.8. Postpartum patient who has recovered from COVID-19 should:

5.8.1. Undergo specific advice for safe infant feeding as benefits outweigh the risks.

5.8.2. Follow appropriate IPC measures (washing hands and nipples before feeding & use of mask).

6. RECOMMENDATION TWO: MANAGEMENT OF COVID 19 IN PREGNANT PATIENTS

Illness severity	Recommended Pharmacotherapies	Obstetrics assessment and Management
Asymptomatic	No treatment needed	• Ensure no obstetric concerns
Not Hospitalized[5],	• Consider **Bamlanivimab** in patients who are at high risk[1] for progressing to severe COVID-19 and/or hospitalization	

[1] **High Risk factors are** age > or =35 years, Obesity, HTN/pre-existing diabetes, Asthma, HIV, chronic heart disease, chronic liver disease, lung disease, & kidney disease, blood disorders & people on immunosuppressive medications.

Mild COVID-19		• Discharge for self - isolation and advise for follow up
Hospitalized but Does Not Require Supplemental Oxygen therapy (Target Spo2 95-98%)	• **Bioferon** nebulization **AND** • **VTE** Prophylaxis[2] If High risk[1], consider • **Remdesivir** 200 mg intravenously (IV) for 1 day, followed by Remdesivir 100 mg IV for 4 days (total 5 days) **OR** • **Favipiravir**[3] 1600 mg PO BID X 2 doses then 600 mg PO BID (total 10-14 days)	• Consult the Obstetric team for assessment of foetal wellbeing. • Consider foetal monitoring ○ <28 weeks -> intermittent auscultation ○ >28 weeks-> CTG • Discuss timing of birth when indicated. • Inform maternity escalation team (obstetric consultant obstetric anaesthetist, on call medical team) whenever needed.
Hospitalized[5] and Requires supplemental Oxygen (Target Spo2 95-98%) (Not on *a high-flow device, non-invasive ventilation,*	• **Bioferon** nebulization **AND** • **VTE** Prophylaxis[2] **AND** • **Remdesivir** 200 mg intravenously (IV) for 1 day, followed by Remdesivir 100 mg IV for 4 days (total 5 days) + **Dexamethasone** 6 mg IV /PO daily for 10 days or equivalent Corticosteroids[4] **OR** • **Favipiravir** [3]1600 mg PO BID X 2 doses then 600 mg PO BID (total 14 days) + **Dexamethasone** 6	

[2] VTE risk assessment (appendix 1) should be done on admission for all patients

- All admitted patients should receive thromboprophylaxis
- Consider high dose thromboprophylaxis based on your risk assessment
- On Discharge, repeat the VTE risk assessment score, VTE prophylaxis after hospital discharge for 10 days up to 3 months according to the VTE risk assessment score

[3] As **Favipiravir** is teratogenic in pregnancy, it is contraindicated in the first trimester up to 14 weeks of gestation. It has been given compassionate use in pregnancy by the National UAE guidelines when the benefits outweigh the risks.

invasive ventilation	mg IV /PO daily for 10 days or equivalent Corticosteroids[4]	• Consider steroids for foetal lung maturity (28 weeks onwards) ○ Dexamethasone 6mg BD IV 48H) • Consider magnesium sulphate for neuroprotection depending on patient condition at the consultant's discretion (28 weeks onwards) if anticipating delivery within 24 hrs, take caution about respiratory rate. • Inform neonatologist if delivery is planned.
Hospitalized[5] and Requires Oxygen Delivery through a High-flow device or Non-Invasive Ventilation	• **Bioferon** nebulization **AND** • **VTE** Prophylaxis[2] **AND** • **Remdesivir** 200 mg intravenously (IV) for 1 day, followed by Remdesivir 100 mg IV for 4 days (total 5 days) + **Dexamethasone** 6 mg IV /PO daily for 10 days or equivalent Corticosteroids[4] **OR** • **Dexamethasone** 6 mg IV /PO daily for 10 days or equivalent Corticosteroids[4] • **Tocilizumab should be considered within 24 hours of admission in patients with** evidence of early cytokine release syndrome (cytokine storm) with increased IL6 level, or elevated CRP of 75 or more	
Hospitalized[5] and Requires Invasive Mechanical Ventilation or ECMO	• **Dexamethasone** 6 mg IV /PO daily for 10 days or equivalent Corticosteroids[4] **AND** • **VTE Prophylaxis**[2] • **Tocilizumab should be considered within 24 hours of admission in patients with** evidence of early cytokine release syndrome (cytokine storm)	

[4] **Corticosteroids**: The total daily dose equivalencies to dexamethasone 6 mg (oral or intravenous [IV]) are: Prednisone 40 mg, Methylprednisolone 32 mg, Hydrocortisone 160 mg

[5] **Antimicrobial and antifungals** should not be used routinely in patients with COVID 19 except in circumstances where superimposed bacterial/fungal infection is suspected

	with increased IL6 level, or elevated CRP of 75 or more	

7. **RECOMMENDATION THREE:** SPECIAL CONSIDERATION IN THE ANTENATAL CARE OF THE PREGNANT COVID-19 PATIENT

First trimester: To be treated as other non-pregnant adults	• Delay if COVID-19 suspected or confirmed until recommended period of isolation is completed. • Appointments should be delayed by the senior based on urgency and risk and benefit assessment.
In Labor	• Women should call the maternity unit for advice. • Send home if not in labour • Isolate and complete full maternal and foetal assessment • Treat sepsis, if present, as per hospital guidelines
In Labour Room	• MDT approach • Minimum involvement of staff • Senior-most should attend if emergency scenario rises • Hourly O_2 saturation and continuous CTG monitoring
Mode of Delivery	• No evidence of favouring one mode of delivery over the other • Regional anaesthesia and Entonox mask are not contraindicated • Individual assessment of risk and benefit of continuing labor vs. emergency caesarean. • Delayed cord clamping is recommended
Elective Birth	• Check platelets and coagulation • Regional anaesthesia is preferred over general unless GA is indicated in view of coagulopathy, urgency, or other maternal conditions

Planned Induction of Labour	• Cannot be safely delayed • Individualized assessment • Admission in isolation rooms
Operation Theatre	• Elective procedures should be scheduled at the end of the list • Non-elective procedures should be carried out in another operation theatre • Minimum staff, all of whom must wear appropriate PPE
Postpartum Care	• Routine as per hospital protocol • Breast feeding and rooming in are not contraindicated • VTE prophylaxis as per risk assessment score • Follow up regarding effective contraception
Readmission for **Postnatal Obstetric or Neonatal Care** during Home Isolation	• Reassessment by healthcare provider • Admission depending on level of care required for mother or baby

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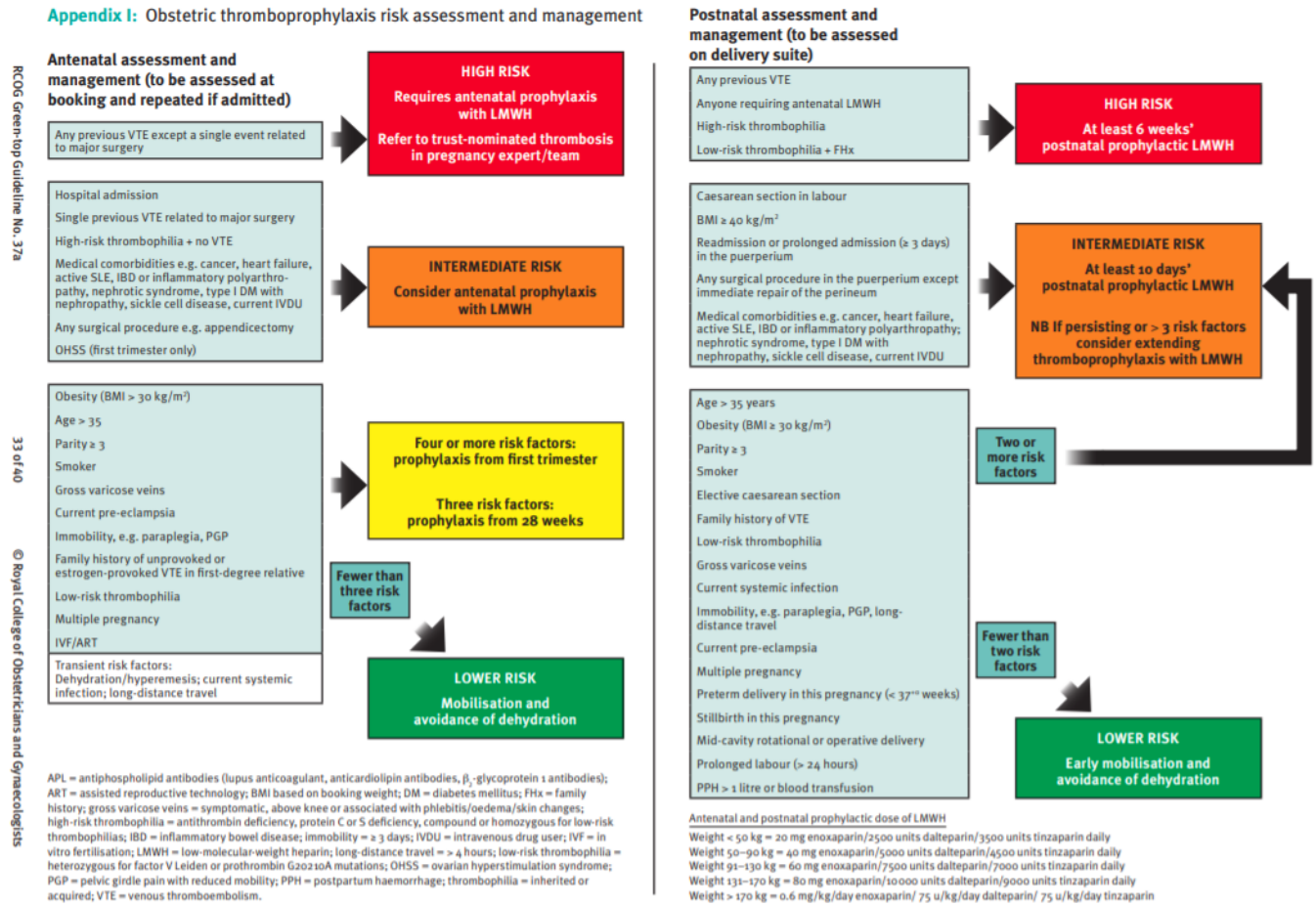
APPENDICIES

APPENDIX 1: ASSESSMENT OF COVID 19 IN PREGNANT PATIENTS

APPENDIX 2: VTE RISK ASSESSMENT



APPENDIX 3: PATIENT INFORMATION LEAFLET FOR PATIENTS BEING DISCHARGED HOME FROM EMERGENCY DEPARTMENT

Important information to keep you safe while isolating at home

- Self-isolate yourself at home, if COVID test result is not yet ready.
- If you are COVID positive, self-isolate at least for 10 to 14 days at home.
- Most people recover with home care within 2 weeks.
- To help you recover, take:
  - Rest
  - Regular fluids
  - Paracetamol (as needed every 6-8 hours)
  - Symptomatic treatment provided to you by your doctor
  - Take anti- clot injection if prescribed to you by your doctor.
- If you are experiencing any of the following, attend emergency for assessment:
  - Feeling breathless, having difficulty in breathing or unable to con full sentences
  - Persistent fever > 3 days
  - If Oxygen saturation < 95% on pulse oximetry
  - Severe fatigue or unable to take care of yourself
  - Passing urine less than normal
  - Coughing blood
  - Chest pain or heaviness
  - Feeling drowsy or fainting attack
  - Skin rash.

إرشادات هامة للمرضى الحوامل المصابات بفيروس كرونا بعد زيارة المستشفى

لضمان سلامتك خلال فترة العزل المنزلي نرجو منك اتباع الارشادات التالية:

- ❖ اتبعي إرشادات العزل المنزلي حتى صدور نتيجة الفحص الخاص بفيروس كرونا
- ❖ إذا تم تأكيد اصابتك بفيروس كرونا، قومي بالعزل المنزلي لمدة 10 الى 14 يوم
- ❖ في اغلب الحالات يتم التعافي في فترة ما يقارب الأسبوعين
- ❖ لمساعدتك على التعافي نرجو منك اتباع الارشادات التالية

- ➢ الراحة
- ➢ شرب الكثير من السوائل
- ➢ اخذ دواء خافض للحرارة حسب الحاجة كل ستة الى ثمان ساعات
- ➢ في حال وجود عوارض صحية نرجو منك اتباع نصائح الطبيب المعالج
- ➢ يجب اتباع الارشادات الطبية واخذ الادوية الطبية التي صرفت لك بانتظام
- ➢ يجب اتباع الارشادات الطبية بما يخص الابر المضادة للتجلط
- ➢ يجب عليك الالتزام في حال طلب منك الطبيب العودة للمستشفى للمتابعة

- ❖ **يجب زيارة المستشفى في حال وجود أيً من الاعراض التالية:**
- ➢ صعوبة او قصور في التنفس او عدم المقدرة على التحدث
- ➢ ارتفاع درجة الحرارة على مدى ثلاث أيام متواصلة
- ➢ نقص في نسبة الاكسجين في الدم الى اقل من 95% (نرجو استخدام مقياس اكسجين الدم الطبي)
- ➢ التعب الشديد او عدم المقدرة على العناية بنفسك
- ➢ ملاحظه قلة في مستوى التبول العادي
- ➢ خروج دم اثناء الكحة
- ➢ الم او احساس بالثقل في الصدر
- ➢ إحساس بالدوخة او الدوار او حالات الاغماء
- ➢ ملاحظة طفح جلدي