DHA TELEHEALTH CLINICAL GUIDELINES FOR VIRTUAL MANAGEMENT OF NAUSEA AND VOMITING – 08

Version 1

Issue date: 27/07/2021

Effective date: 27/09/2021

Health Policies and Standards Department

Health Regulation Sector (2021)

INTRODUCTION

Dubai Health Authority (DHA) is the responsible entity for regulating, licensing and monitoring health facilities and healthcare professionals in the Emirate of Dubai. The Health Regulation Sector (HRS) is an integral part of DHA and was founded to fulfil the following overarching strategic objectives:

Objective #1: Regulate the Health Sector and assure appropriate controls are in place for safe, effective and high-quality care.

Objective #2: Position Dubai as a global medical destination by introducing a value-based, comprehensive, integrated and high-quality service delivery system.

Objective #3: Direct resources to ensure happy, healthy and safe environment for Dubai population.

ACKNOWLEDGMENT

This document was developed for the Virtual Management of Nausea and Vomiting. in collaboration with Subject Matter Experts. The Health Policy and Standards Department would like to acknowledge and thank these professionals for their dedication toward improving the quality and safety of healthcare services.

The Health Regulation Sector

Dubai Health Authority

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EXECUTIVE SUMMARY

Telehealth is based on Evidence Based Practice (EBP) which is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of the individual patient. It means integrating individual clinical expertise with the best available external clinical evidence and guidelines from systematic research.

EBP is important because it aims to provide the most effective care virtually, with the aim of improving patient outcomes. As health professionals, part of providing a professional service is ensuring that practice is informed by the best available evidence.

This guideline is presented in the format comprising of clinical history/symptoms, differential diagnosis, investigations and management. Identification of 'Red Flags' or serious conditions associated with the disease is an essential part of this telehealth guideline as it aids the physician to manage patients safely and appropriately by referrals to ER, family physicians or specialists for a face to face management.

Nausea and vomiting are common sequelae of a multitude of disorders that can range from mild, self-limited illnesses to severe, life-threatening conditions. Vomiting and nausea may or may not occur together or may be perceived at the same level of intensity. Vomiting can occur without preceding nausea in individuals with mass lesions in the brain or increased intracranial pressure (ICP). Furthermore, some medications may alleviate nausea but not vomiting, or vice versa.

The symptoms of nausea and vomiting may be caused by many pathologic states involving several systems (including gastrointestinal, neurologic, renal, and psychiatric)

DEFINITIONS/ABBREVIATIONS

Virtual Clinical Assessment: Is the evaluation of the patient's medical condition virtually via telephone or video call consultations, which may include one or more of the following: patient medical history, physical examination and diagnostic investigations.

Patient: The person who receives the healthcare services or the medical investigation or treatment provided by a DHA licensed healthcare professional.

ABBREVIATIONS

CNS	:	Central Nervous System
DHA	:	Dubai Health Authority
EBP	:	Evidence Based Practice
ER	:	Emergency Room
ESR	:	Erythrocyte Sedimentation Rate
GER	:	Gastroesophageal Reflux Disease
GI	:	Gastrointestinal
ICP	:	Increased Intracranial Pressure
KPI	:	Key Performance Indicator
MRI	:	Magnetic Resonance Imaging
NSAIDs	:	Nonsteroidal Anti-Inflammatory Drugs
POTS	:	Postural Orthostatic Tachycardia Syndrome

1. BACKGROUND

1.1. There are numerous possible causes of emesis. A detailed telephonic history taking is needed to assess the cause.

1.1.1. Common causes include:

a. Gastroenteritis (usually viral)

b. Adverse drug reactions

c. Motion sickness

d. Migraine

e. Pregnancy

f. Vestibular disorders

1.1.2. Less common causes

a. Cardiac: acute coronary syndrome, postural orthostatic tachycardia syndrome (POTS) • Endocrine: diabetic gastroparesis, diabetic ketoacidosis, hypoglycaemia, hypercalcemia, hypothyroidism, hyperthyroidism

b. GI/hepatobiliary: biliary colic, cholecystitis, pancreatitis, hepatitis, mucosal irritation of upper GI tract (e.g. gastritis, peptic ulcer), food poisoning, bowel obstruction, gastric neuromuscular disorders

c. Malignancy: nauseogenic tumors include ovarian, renal, stomach and small cell lung cancers. Liver metastases can cause anorexia associated with nausea

d. Neurological: CNS infections, tumors, stroke, vestibular nerve lesions, Parkinson's disease

e. Psychiatric: bulimia and anorexia nervosa, drug overdose

f. Renal: nephrolithiasis, renal failure, pyelonephritis

g. Other: alcohol, cannabis, post-operative, chemotherapy and radiotherapy

2. SCOPE

2.1. Telehealth services in DHA licensed Health Facilities.

3. PURPOSE

3.1. To support the implementation of Telehealth services for patients with complaints of nausea and vomiting in Dubai Health Authority (DHA) licensed Health Facilities

4. APPLICABILITY

4.1. DHA licensed physicians and health facilities providing Telehealth services.

4.2. Exclusion for Telehealth services are as follows

4.2.1. Emergency cases where immediate intervention or referral is required.

4.2.2. Prescribe Narcotics, Controlled or Semi-Controlled medications.

5. RECOMMENDATION

5.1. Virtual Clinical Assessment

5.1.1. In telemedicine consultation, physician should aim to:

a. Firstly, establish that the patient has vomiting, as opposed to regurgitation, retching or nausea.

b. Secondly, narrow down the diagnosis; try to distinguish between a GI and non-GI causes.

c. Thirdly, decide whether referral or further investigations are required, and how urgently.

5.1.2. Some key features of the history

a. Duration of vomiting (The vomiting component of viral gastroenteritis usually lasts 12-48 hours).

b. Abdominal pain with vomiting (often indicates an organic etiology e.g., cholelithiasis)

c. Heartburn with nausea (often indicates gastroesophageal reflux disease (GERD) and GERD can present as chronic nausea without typical reflux symptoms

d. Headache (may indicate migraine-associated vomiting).

e. Cyclical vomiting syndrome is characterized by symptom-free weeks followed by days of extremely severe nausea and vomiting.

f. Nature of vomit and relation to meals - partially digested food and delay in vomiting after eating may indicate gastric outlet obstruction or gastroparesis.

g. Bilious vomiting suggests small bowel obstruction and feculent vomiting suggests colo-intestinal fistulae.

h. Associated symptoms - ask about fever, diarrhea, pain, bleeding, weight loss and anorexia.

i. Enquire about a brief systemic review.

j. Past medical and surgical history - previous abdominal surgery is a risk factor for acute bowel obstruction. Check also for a history of cardiac, thyroid or adrenal disease, diabetes, malignancy, immunosuppression and mental health problems. Consider tropical diseases in returning travellers with fever and vomiting.

k. Early morning vomiting is characteristic of pregnancy. In all women of childbearing age ask about last menstrual period and consider pregnancy as a possible cause.

l. Drugs - NSAIDs, antibiotics, antidepressants, opioids, anti-arrhythmic, theophylline, digoxin, metformin, exenatide, estrogen and progesterone can all induce nausea or vomiting, as can most drugs if taken in large enough quantities.

m. Ask about alcohol, cannabis, recent chemotherapy and radiotherapy.

6. RED FLAGS

6.1. Serious illness is less prevalent in primary care and telemedicine care than in secondary care, and so context is important. Vomiting accompanied by the following symptoms may indicate a serious etiology.

6.1.1. Severe abdominal pain – consider GI obstruction, acute pancreatitis or cholecystitis. If guarding, peritonism and absent or scanty bowel sounds are found, think acute abdomen (for Virtual clinic)

6.1.2. Rectal bleeding – consider GI inflammation or malignancy.

6.1.3. Hematemesis – peptic ulcer, Mallory-Weiss tear, esophageal varices, malignancy.

6.1.4. Acute or focal neurological symptoms – CNS infection, tumor, stroke. Beware the patient with vomiting and unexplained headache.

6.1.5. Chest pain or other features of acute coronary syndrome. Ischemic gastroparesis should be considered in older patients with known atherosclerotic disease.

6.1.6. Anorexia or weight loss may indicate cancer.

6.1.7. Also consider psychiatric causes.

6.1.8. Acute loss of vision with severe periocular pain – symptoms suggestive of acute primary angle closure glaucoma

6.1.9. Weakness, dizziness, fainting and symptoms of dehydration which might indicate Shock, volume depletion – consider adrenal insufficiency, which is a medical emergency

6.1.10. Known diabetic with symptoms of high blood sugar, suspected Diabetic Ketoacidosis

6.2. Patient should be assessed via teleconsultation for any symptoms suggestive of dehydration as below:

6.2.1. Feeling very tired

6.2.2. Being very thirsty or having a dry mouth or tongue

6.2.3. Muscle cramps

6.2.4. Dizziness

6.2.5. Confusion

6.2.6. Urine that is dark yellow, or not needing to urinate for more than 5 hours

7. INVESTIGATIONS

7.1. There are no laboratory tests specific to determining aetiologies of nausea and vomiting. Tests should be directed by the history to determine the underlying cause or to evaluate for the consequences of nausea and vomiting

7.1.1. Blood glucose

7.1.2. Full blood count, ESR

7.1.3. Electrolytes

7.1.4. Stool cultures

7.1.5. Urinalysis

7.2. Refer to **APPENDIX 1** for Diagnostic Tests and Clinical Suspicion for Patients with Nausea and Vomiting

7.3. Refer to **APPENDIX 2** for tests that indicate the need for referral to appropriate specialist

8. DIFFERENTIAL DIAGNOSIS

8.1. Infectious Causes

8.1.1. Gastroenteritis

8.1.2. Viral

8.1.3. Bacterial

8.2. Miscellaneous Causes

8.2.1. Postoperative nausea and vomiting

8.2.2. Cyclic vomiting syndrome

8.2.3. Cardiac disease

a. Myocardial infarction

b. Heart Failure

8.3. Disorders of the gut and peritoneum

8.3.1. Mechanical obstruction

a. Gastric outlet obstruction

b. Small bowel obstruction

8.3.2. Functional gastrointestinal disorders

8.3.3. Gastroparesis

8.3.4. Chronic intestinal pseudo-obstruction

8.3.5. Non-ulcer dyspepsia

8.3.6. Irritable bowel syndrome

8.3.7. Organic gastrointestinal disorders

a. Pancreatic adenocarcinoma

b. Inflammatory intraperitoneal disease

c. Peptic ulcer disease

d. Cholecystitis

e. Pancreatitis

f. Hepatitis

g. Crohn disease

h. Mesenteric ischemia

i. Retroperitoneal fibrosis

j. Mucosal metastases

8.4. Endocrine and metabolic causes

8.4.1. Pregnancy

8.4.2. Other endocrine and metabolic causes:

a. Uremia

b. Diabetic ketoacidosis

c. Hyperparathyroidism

d. Hypoparathyroidism

e. Hyperthyroidism

f. Addison's disease

g. Acute intermittent porphyria

8.4.3. Ethanol abuse

8.4.4. Jamaican vomiting sickness

8.4.5. Hypervitaminosis

8.5. CNS Causes

8.5.1. Migraine

8.5.2. Increased intracranial pressure

a. Malignancy

b. Hemorrhage

c. Infarction

d. Abscess

e. Meningitis

f. Congenital malformation

g. Hydrocephalus

h. Pseudotumor cerebri

8.5.3. Seizure disorders

8.5.4. Demyelinating disorders

8.5.5. Cranial radiation

8.5.6. Emotional responses

8.5.7. Psychiatric disease

a. Psychogenic vomiting

b. Anxiety disorders

c. Depression

d. Pain

e. Anorexia nervosa

f. Bullimia nervosa

8.5.8. Labyrinthine disorders

a. Motion sickness

b. Labyrinthitis

c. Tumors

d. Ménière disease

e. Latrogenic

f. Fluorescein angliography

8.6. Medications and Toxic Etiology

8.6.1. Cancer chemotherapy

a. Severe: Cisplatinum, dacarbazine, nitrogen mustard

b. Moderate: Etoposide, methotrexate, cytarabine

c. Mild: Fluorouracil, vinblastine, tamoxifen

8.6.2. Analgesics

a. Aspirin

b. Nonsteroidal anti-inflammatory drugs

c. Auranofin

d. Antigout drugs

8.6.3. Cardiovasvular medications

a. Digoxin

b. Antiarrhythmics

c. Antihypertensives

d. Beta blockers

e. Calcium channel antagonists

8.6.4. Diuretics

8.6.5. Hormonal preparations/therapies

a. Oral antidiabetics

b. Oral contraceptives

8.6.6. Antibiotics/Antivirals

a. Erythomycin

b. Tetracycline

c. Sulfonamides

d. Antituberculous drugs

e. Acyclovir

8.6.7. Gastrointestinal medications

a. Sulfasalazine

b. Azathioprine

8.6.8. Nicotine

8.6.9. CNS active drugs

a. Narcotics

b. Antiparkinsonian drugs

c. Anticonvulsants

8.6.10. Antiasthmatics – Theophylline

8.6.11. Radiation therapy

8.6.12. Ethanol abuse

8.6.13. Jamaican vomiting sickness

8.6.14. Hypervitaminosis

9. MANAGEMENT

9.1. Refer to APPENDIX 3 for the Virtual Management of Nausea and Vomiting Algoirthm

9.2. Management of nausea and vomiting will depend on the cause, however, below is a common and general management plan

9.3. Non-Pharmacological Treatment:

9.3.1. Advise the patient to:

a. Drink lots of fluids, in small quantity at regular intervals

b. Try eating but start with foods that have a lot of fluid in them. Good examples are soup, JellO, and popsicles. If these are well tolerated then try soft, bland foods, such as plain yogurt. Foods that are high in carbohydrates like bread or saltine crackers, can help settle the stomach. Some people also find that ginger helps with nausea. Avoid foods that have a lot of fat in them. They can make nausea worse.

c. Cool fizzy drinks are better tolerated than still and hot drinks.

d. Avoid strong smells, such as the smell of perfume.

e. Take medicines with meals, if possible. (But check the bottle first, because some medicines must be taken on an empty stomach)

9.4. Pharmacological Treatment:

9.4.1. Drug therapy for nausea and vomiting will include:

a. Metoclopramide

   i. Oral: 10 mg 3 times daily administered prior to meals and at bedtime

b. Domperidone

   i. It is recommended to take oral domperidone tablets before meals. If taken after meals, absorption of the drug is somewhat delayed.

   ii. 10 mg three times daily. Maximum dose is 30 mg per day

10. REFERRAL CRITERIA

10.1. Most cases of viral gastroenteritis will settle within a few days with simple measures, such as oral fluids, rest and analgesia.

10.1.1. Consider urgent referral in the following situations:

c. Haematemesis

d. Have a severe headache or stiff neck

e. Complaints of chest pain

f. Associated with emergency underlying causes, such as acute abdominal pain

g. Have a bowel movement with blood, or a bowel movement that is black and looks like tar

h. Ingestion of any suspected poisonous materials

i. Acute loss of vision with severe periocular pain – symptoms suggestive of acute primary angle closure glaucoma • Immunosuppressed patients.

j. Green vomit (this could mean you are bringing up a fluid called bile, which suggests you may have a blockage in your bowel)

k. Suspected Diabetic Ketoacidosis

10.2. Referral Criteria to Family Physician/Specialist

10.2.1. Vomiting repeatedly for more than a day or two

10.2.2. Associated with complications of vomiting, such as dehydration

10.2.3. Loss of weight

10.2.4. Experience episodes of vomiting frequently

10.2.5. History of diabetes and have been vomiting persistently, particularly if you need to take insulin. This is because prolonged vomiting can affect your blood sugar level.

10.2.6. For people aged 60 and over who have nausea or vomiting with weight loss, consider an urgent direct access CT scan (or ultrasound if CT is not available) to look for pancreatic cancer.

10.2.7. For people aged 55 and over who have nausea or vomiting with raised platelet count, weight loss, reflux, dyspepsia or upper abdominal pain,

consider a non-urgent direct access upper GI endoscopy to look for esophageal or stomach cancer

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APPENDICES

APPENDIX 1 - DIAGNOSTIC TESTS AND CLINICAL SUSPICION FOR PATIENTS WITH NAUSEA AND VOMITING

Test	Clinical Suspicion
Complete blood count	Leukocytosis in an inflammatory process, microcytic anemia from a mucosal process
Electrolytes	Consequences of nausea and vomiting (e.g., acidosis, alkalosis, azotemia, hypokalemia)
Erythrocyte sedimentation rate	Inflammatory process
Pancreatic/liver enzymes	For patients with upper abdominal pain or jaundice
Pregnancy test	For any female of childbearing age
Protein/albumin	Chronic organic illness or malnutrition
Specific toxins	Ingestion or use of potentially toxic medications
Thyroid-stimulating hormone	For patients with signs of thyroid toxicity or unexplained nausea and vomiting
Abdominal ultrasonography	Right upper quadrant pain associated with gallbladder, hepatic, or pancreatic dysfunction

APPENDIX 2 - TESTS THAT INDICATE THE NEED FOR REFERRAL TO APPROPRIATE SPECIALIST

Test	Clinical Suspicion
Radiographic testing- Supine and upright abdominal radiography	Mechanical obstruction
Esophagogastroduodenoscopy	Mucosal lesions (ulcers), proximal mechanical obstruction
Upper gastrointestinal radiography with barium contrast media	Mucosal lesions and higher-grade obstructions; evaluates for proximal lesions
Small bowel follow-through	Mucosal lesions and higher-grade obstructions; evaluates the small bowel to the terminal ileum
Enteroclysis	Small mucosal lesions, small bowel obstructions, small bowel cancer
Computed tomography with oral and intravenous contrast media	Obstruction, optimal technique to localize other abdominal pathology
Gastric emptying scintigraphy	Gastroparesis (suggestive)
Antroduodenal manometry	Primary or diffuse motor disorders
MRI of the brain	Intracranial mass or lesion

APPENDIX 3 – VIRTUAL MANAGEMENT OF NAUSEA AND VOMITING ALGORITHM