



# Hyperemesis gravidarum

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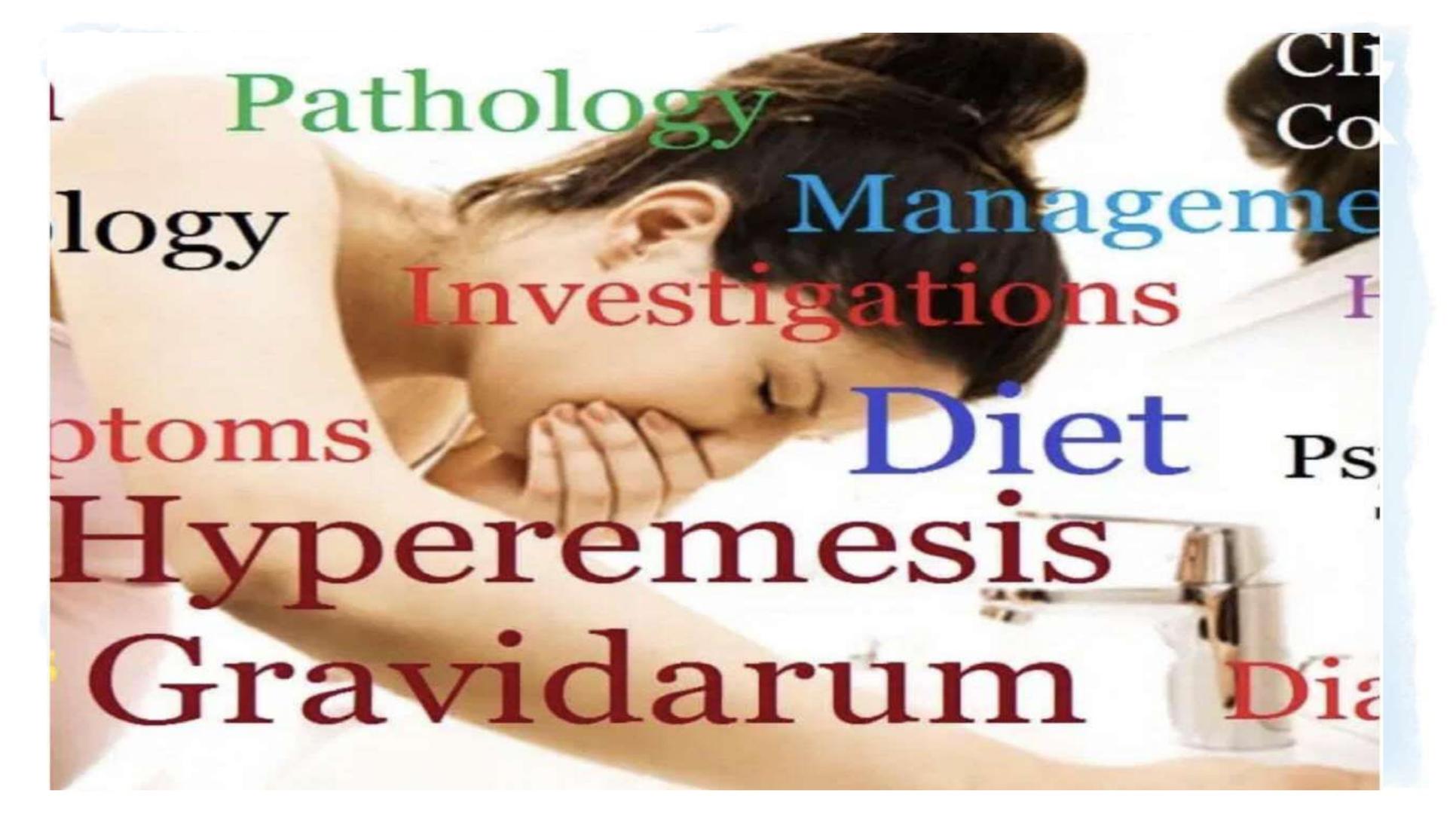
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Hiba saeed



Pathology

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Management

Investigations

ptoms

Diet

Hyperemesis

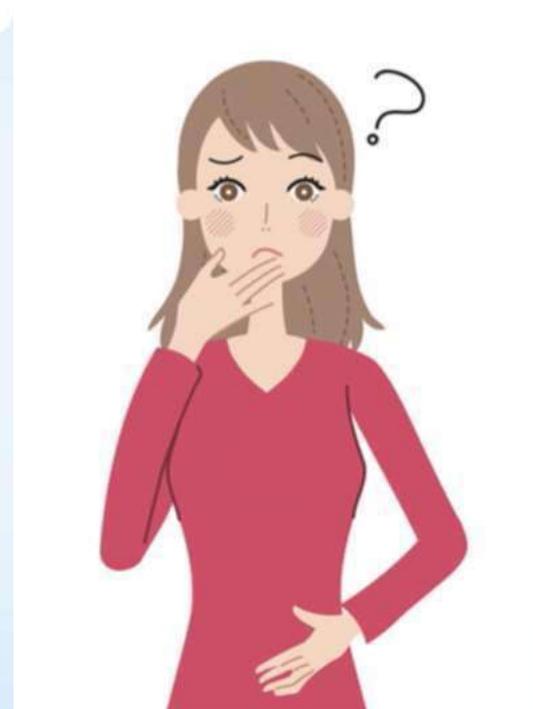
Gravidarum

Dia

## Case

A primigravid woman is readmitted at 10 weeks of gestation with hyperemesis gravidarum

- a) Explain the potential complications.
- b) Justify your clinical examination and investigations.
- c) Outline your treatment options.



## Introduction

**Hyperemesis gravidarum** is the most **severe** form of nausea and vomiting in pregnancy, characterized by persistent nausea and vomiting associated with **ketosis** and **weight loss** .(>5% of prepregnancy weight)



## Introduction

While nausea and vomiting of pregnancy in general is estimated to occur in 50 to 90% of all pregnancies,

hyperemesis gravidarum is estimated to occur in 0.5 to 2% of pregnant women.



## **What are the risk factors for hyperemesis gravidarum?**

- Hyperemesis gravidarum during a previous pregnancy.
- Being overweight.
- Having a multiple pregnancy.
- Being a first-time mother.
- The presence of gestational trophoblastic disease.

# what causes hyperemesis gravidarum?

Hyperthyroid disorders,  
psychiatric illness,  
previous molar disease,  
gastrointestinal disorders,  
pregestational diabetes,  
and asthma were significantly independent risk factors for hyperemesis gravidarum,

whereas **maternal smoking and maternal age older than 30 years** decreased the risk.

Pregnancies with female fetuses and multiple fetuses were also at increased risk



- High levels of Beta-hCG
- High placenta weight
- Psychological and family aspects

# History taking:

the **timing**,  
**onset**,  
**severity**,  
**pattern**,  
and **alleviating and exacerbating factors**.

A thorough **review of systems** for any symptoms that might suggest other gastrointestinal, renal, endocrine, and central nervous system disorders is vital.



## History taking:

Other common symptoms include  
**ptyalism (excessive salivation),  
fatigue, weakness, and dizziness.**

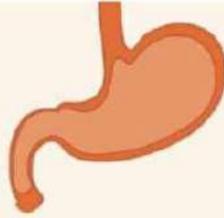
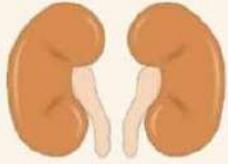
Patients may also experience the following:

- Sleep disturbance
- Hyperolfaction
- Depression
- Mood changes

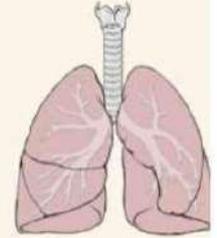


## **Examination**

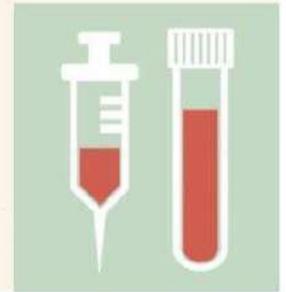
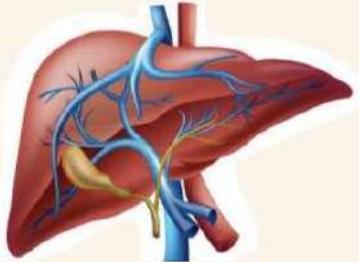
- General appearance
- Vital sign
- Volume status
- Abdominal examination
- Cardiac evaluation
- Neurological evaluation



# Hyperemesis gravidarum



## Investigation



# Investigations

- CBC
- Serum Electrolytes
- Serum ketones
- Urine analysis
- Liver enzymes
- Thyroid hormone
- Estradiol
- B-hcg
- U/S



# Management

- **admit pregnant patients with any of the following:**
- Persistently abnormal vital signs
- Severe dehydration and inability to tolerate oral fluids
- Severe electrolyte abnormality
- Acidosis
- Infection
- Malnutrition

# Treatment

1- conservative ( lifestyle change , non-pharmacological )

2- pharmacological

3- surgical

### Motherisk PUQE-24 scoring system

In the last 24 hours, for how long have you felt nauseated or sick to your stomach?	Not at all (1)	1 hour or less (2)	2-3 hours (3)	4-6 hours (4)	More than 6 hours (5)
In the last 24 hours have you vomited or thrown up?	7 or more times (5)	5-6 times (4)	3-4 times (3)	1-2 times (2)	I did not throw up (1)
In the last 24 hours how many times have you had retching or dry heaves without bringing anything up?	No time (1)	1-2 times (2)	3-4 times (3)	5-6 times (4)	7 or more times (5)

PUQE-24 score: Mild  $\leq$  6; Moderate = 7-12; Severe = 13-15.

## HELP (HyperEmesis Level Prediction) SCORE

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Gestational Age: \_\_\_\_\_ SCORE: \_\_\_\_\_

TODAY'S Weight: \_\_\_\_\_ LAST WEEK'S Weight: \_\_\_\_\_ Change: \_\_\_\_\_% PREVIOUS SCORE: \_\_\_\_\_

Meds:  Ondansetron  Granisetron  Diclegis  Promethazine  Metoclopramide  \_\_\_\_\_

Mark ONE box in EACH ROW that describes symptoms over the last 24 hours unless specified otherwise.

<b>My nausea level most of the time:</b>	0	1 (Mild)	2	3 (Moderate)	4	5 (Severe)
<b>I average _____ vomiting episodes/day:</b>	0	1-2	3-5	6-8	9-12	13 or more
<b>I retch/dry heave _____ episodes daily:</b>	0	1-2	3-5	6-8	9-12	13 or more
<b>I am urinating/voiding:</b>	Same	More often due to IV fluids or light color	Slightly less often, and normal color	Once every 8 hours or slightly dark yellow	Less than every 8 hours or darker	Rarely; dark or bloody; or foul smell
<b>Nausea/vomiting severity 1 hour after meds OR after food/drink if no meds:</b>	0 or No Meds	1 (Mild)	2	3 (Moderate)	4	5 (Severe)
<b>Average number of hours I'm unable to work adequately at my job and/or at home due to being sick has been:</b>	0	1-2 (hours are slightly less)	3-4 (can work part time)	5-7 (can only do a little work)	8-10 (can't care for family)	11+ (can't care for myself)
<b>I have been coping with the nausea, vomiting and retching:</b>	Normal	Tired but mood is ok	Slightly less than normal	It's tolerable but difficult	Struggling; moody, emotional	Poorly; irritable depressed
<b>Total amount I have been able to eat/drink AND keep it down: <i>Medium water bottle/large cup = 2 cups/500mL.</i></b>	Same; no weight loss	Total of about 3 meals & 6+ cups fluid	Total of about 2 meals & some fluid	1 meal & few cups fluid; or only fluid or only food	Very little, <1 meal/minimal fluids; or frequent IV	Nothing goes or stays down, or daily IV/TPN/NG
<b>My anti-nausea/vomiting meds stay down or are tolerated:</b>	No meds	Always	Nearly always	Sometimes	Rarely	Never/IV/SQ (SubQ pump)
<b>My symptoms compared to last week:</b>	Great	Better	About Same	Worse	Much Worse	So Much Worse!!!
<b>Weight loss over last 7 days: _____%</b>	0%	1%	2%	3%	4%	5%
<b>Number of Rx's for nausea/vomiting*</b>	0	1	2	3	4	5+
	0 pts	1 pt/answer	2 pts/answer	3 pts/answer	4 pts/answer	5 pts/answer
<b>TOTAL each column = (#answers in column) x (# points for each answer)</b>	0					
<b>TOTAL for ALL columns: _____</b>		None/Mild ≤ 19		Moderate 20-32		Severe 33-60

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Weight Loss % = (Amount lost ÷ Pre-pregnancy weight) x 100  
(Weight loss calculation optional for home use)

\* Number of Rx's = Number of Rx medications for HG (not doses)



**HER**  
Foundation  
The global voice of HG

info@hyperemesis.org  
www.hyperemesis.org  
www.HelpHER.org

Support:  
GetHelpNow@hyperemesis.org

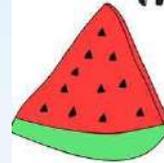
HER Foundation  
10117 SE Sunnyside Road FB  
Clackamas, OR 97015 USA

Reprints:  
www.hyperemesis.org/tools

# Lifestyle & dietary change

- Chewing a piece of dry food (toasted bread, etc.) before getting out of bed .
- Avoiding trigger
- drinking eight glasses of water daily .
- Eating small meals multiple times a day .
- Eating a protein rich snack at bed-time .
- Sucking on some candy, a piece of lemon, etc. in between meals

## Foods to Fight Morning Sickness



watermelon helps stay hydrated and the sugar curbs nausea



Ginger Ale where the ginger helps the upset stomach



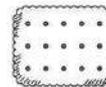
water keeps you hydrated



freeze Gatorade or Pedialyte to suck on for hydration



Greek Yogurt good protein to fill your stomach



bland crackers get a little something in your system



mashed potatoes are easy eats to fight nausea

# Non-pharmacological therapies

- Emotional support
- Psychotherapy, hypnotherapy, and behavioural therapy
- Ginger
- alternative therapies, such as acupuncture and acupressure (motion sickness wrist band )



## HOW TO PERFORM ACUPRESSURE FOR VOMITING AND NAUSEA

Acupressure is an ancient Chinese therapy that combines acupuncture and pressure. Research shows that it can relieve side effects of chemotherapy, including nausea and vomiting.

### STEP 1

The pressure point P-6, or Neiguan, is located three fingers' widths below your wrist crease. To find it, flatten your palm and place the first three fingers of your opposite hand across your wrist.

### STEP 2

Place your thumb on the point below your index fingers between two large tendons. Apply firm pressure and massage the point for two to three minutes. The massage should be firm, but not painful.

The image shows two hands demonstrating the steps to find and apply acupressure to the P-6 point. In Step 1, the palm is flattened and the first three fingers of the opposite hand are placed across the wrist. In Step 2, the thumb is placed on the point between two large tendons, and firm pressure is applied.

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# Pharmacological management

1- doxylamine/pyridoxine

2- H1 receptor antagonists : Dimenhydrinate , Diphenhydramine

3- *Dopamine antagonist phenothiazines*

- Phenothiazines ( chlorpromazine OR prochlorperazine OR promethazine

4- *Metoclopramide*

5- *Ranitidine and omeprazole*

6- *Routine thiamine supplementation* to prevent Wernicke's encephalopathy .

7- *Thromboprophylaxis* (e.g., enoxaparin 40 mg daily) and thromboembolic deterrent stockings. international guide line support the use of LMWH in patient with HG to decrease the incidence of thromboembolic events that complicated by dehydration , electrolyte imbalance , weight loss & long stay in hospital



## If no improvement & unable to maintain adequate hydration.

### *Rehydration*

- IV rehydration with normal saline or Hartmann's solution.
- Potassium chloride.
- Fluid and electrolyte regimens
- Avoid double strength saline solution
- Avoid solutions containing dextrose



# If no improvement

## *1- Corticosteroid therapy*

- methylprednisolone OR prednisolone
- May produce rapid improvement
- Screening for the complications of steroid treatment
- Avoid corticosteroids during the first trimester

*2- Ondansetron : monitor ECG ( cause prolong QT interval )*

## If no improvement in refractory cases

### *1- Enteral feeding*

### *2- Total parenteral nutrition*

- Produces a rapid therapeutic effect.
- Recommended if optimal rehydration, antiemetic therapy, and a trial of corticosteroids and/or ondansetron have failed to result in improvement.
- Risks – metabolic and infectious complications
- careful monitoring is essential.

### *3- surgery :*

termination of the pregnancy should be considered.

## **complications**

Hyperemesis gravidarum causes imbalances of fluid and electrolytes, disturbs nutritional intake and metabolism, causes physical and psychological debilitation and is associated with adverse pregnancy outcome.



# complications

- Maternal

- Fetal

- Psychological impact.

## Maternal complication

- dehydration and ketosis, weight loss of 5% or greater of body weight and muscle wasting
- Mallory–Weiss tears and haematemesis
- malnutrition and vitamin deficiencies including thiamine deficiency – Wernicke's encephalopathy – diplopia, abnormal ocular movements, ataxia, and confusion.

## Maternal complication

- Korsakoff's psychosis – retrograde amnesia, impaired ability to learn, and confabulation.
- Hyponatraemia – lethargy, seizures, respiratory arrest. Both severe hyponatraemia and its rapid reversal may precipitate central pontine myelinolysis – spastic quadraparesis, pseudobulbar palsy, and impaired consciousness.
- Other vitamin deficiencies – (cyanocobalamin and pyridoxine) can cause anaemia and peripheral neuropathy.
- Maternal death.

## Fetal complication

- lower birth weight
- increased risk of preterm birth
- fetal death in severe Wernicke's encephalopathy.

## Psychological impact

- Affects work and quality of life.
- Depression.
- Difficulties between partners
- In some, the condition is so intolerable that they elect to have a termination of pregnancy.

# Literature review: Meta-Analysis



**-Reviews of Recent Literatures About HG : Interventions for treating hyperemesis gravidarum : a Cochrane systematic review and meta-analys**

The result of this meta-analysis revealed:

**1-acupuncture vs placebo**



# 2-acupuncture vs metoclopramide



# 3-midwife care vs routine care



# 4-vitamin B6 vs placebo



## 5- metoclopramide vs ondansetron



## 6- metoclopramide vs promethazine



# 7- ondasteron vs promethazine





**8-corticosteroids vs placebo**

# 9-prednisolone vs promethazine





## **10-dextrose saline vs normal saline**

-in rehydration of pt. with HG.



**-Review of Hyperemesis gravidarum and the risk of emotional distress during and after pregnancy.**

**-Cohort population study**



**-The aim is To assess the association between HG and emotional distress during and after pregnancy.**

## Flow chart

A primigravida woman is readmitted at 10 weeks of gestation with hyperemesis gravidarum.

- a) Explain the potential complications.
- b) Justify your clinical examination and investigations.
- c) Outline your treatment options.

## History

- ▶ She is a primigravida and this her second admission for the same complaint.
- ▶ We will Quantify severity using PUQE score
- ▶ Ask her about nausea, vomiting, hypersalivation, spitting, loss of weight, inability to tolerate food and fluids, effect on quality of life
- ▶ Ask her about other symptoms to exclude other causes:
  - abdominal pain
  - urinary symptoms
  - infection
  - drug history
  - chronic H. pylori infection

## **We will Examine her for :**

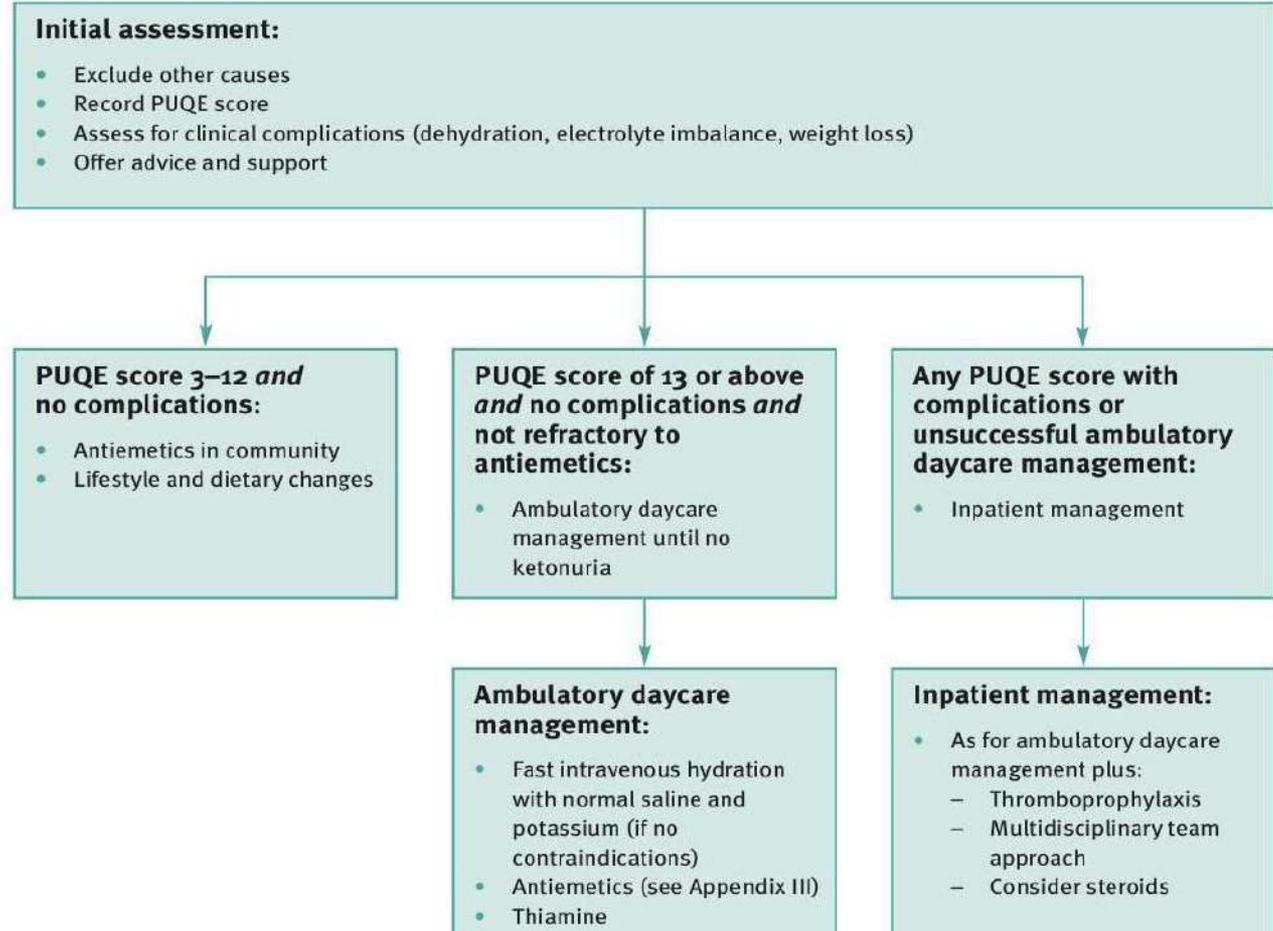
- Temperature
- Pulse
- Blood pressure
- Oxygen saturations
- Respiratory rate
- Abdominal examination
- Weight loss & muscle wasting
- Signs of dehydration
- Other examination as guided by history

## **We will do many investigations for her :**

- Urine dipstick
- MSU
- Urea and electrolytes
- Full blood count
- Blood glucose monitoring
- Ultrasound scan
- Other investigations in refractory cases

The patient will be treated depending on the PUQE score.

## Appendix IV: Treatment algorithm for NVP and HG





*Thank You*



A decorative floral arrangement featuring a variety of roses in shades of deep red, light pink, and pale yellow, interspersed with green leaves and clusters of small, dark red berries. The arrangement is positioned horizontally above and below the central text.