

A Case of Hyperemesis Gravidarum

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Case Report

A 24 year old lady, Gravida 2 parity 1, with one previous vaginal delivery recurrently presented to her health center from 7 to 10 weeks gestation with symptoms of nausea and vomiting up to 10 times/day. No prior issues or complications were experienced with her first pregnancy and she was generally fit and well with no known comorbidities. She was treated with IV fluids and IM antiemetics when seen (metoclopramide/ prochlorperazine were prescribed on separate occasions to treat her acute symptoms in primary care). This helped to settle her symptoms before she was discharged home from the health center.

Initially at earlier presentations to primary care, vital signs and urine tests were normal but by 10 weeks of gestation (3 weeks after initial presentation) she was found to have 4+ketones and 2+protein in the urine as well as a drop of 3Kg in weight from her pre-pregnancy measurement, and elevated liver enzymes. As a result, she was referred to secondary care.

On admission, laboratory tests showed pancreatic enzymes abnormalities, electrolyte imbalance with low potassium and magnesium levels. These were corrected with IV fluids and IV infusion of magnesium and potassium. She also developed abnormalities in the thyroid function, TSH dropped to 0.01 and free T4 increased to 24.2. The medical team were consulted by the A&E team and their advice was to normalize the electrolyte abnormalities and to observe the thyroid function. A possible outpatient follow-up in the endocrine clinic was suggested, if the abnormality persisted. As the cause was related to the severe vomiting and dehydration, this was not required. Antenatal USS showed a viable pregnancy with fetal growth consistent with the gestational age at 11 weeks. After 10 days, she was discharged home with oral pantoprazole and general advice regarding symptoms management and return if symptoms of nausea and vomiting recurred.

Definition:

'Morning sickness' describes symptoms of nausea and vomiting, usually early in pregnancy(1). Up to 90% of women experience nausea during pregnancy. Approximately 27% to 30% of women experience only nausea, while vomiting may be seen in 28% to 52% of all pregnancies (2). In comparison, hyperemesis gravidarum (HG) is a more severe form of this nausea and vomiting symptoms. It can potentially be lethal if not treated, affecting around 1 to 3% of pregnant women. Women usually present with severe, prolonged nausea and vomiting which can lead to weight loss of more than 5% of pre-pregnancy weight, fluid loss and dehydration(1,3). In most women, symptoms may improve or disappear by around week 14(1) but up to 22% of the cases, symptoms can last until delivery (4). It has a complex multifactorial aetiology(5).

Epidemiology and Risk Factor for Hg:

Women with HG are more likely to be younger, non-smokers, and non-Caucasian. Also, women with a current or previous history of pre-pregnancy diabetes, depression, thyroid disease, peptic ulceration and multiple gestation are at risk and likely to undergo a caesarean delivery. Risk of admission was found to be 29 times higher if the previous pregnancy also featured an antenatal admission for hyperemesis(5). The risk of HG was 15.2% in the second pregnancy in women with previous HG and 0.7% in women without previous hyperemesis (6).

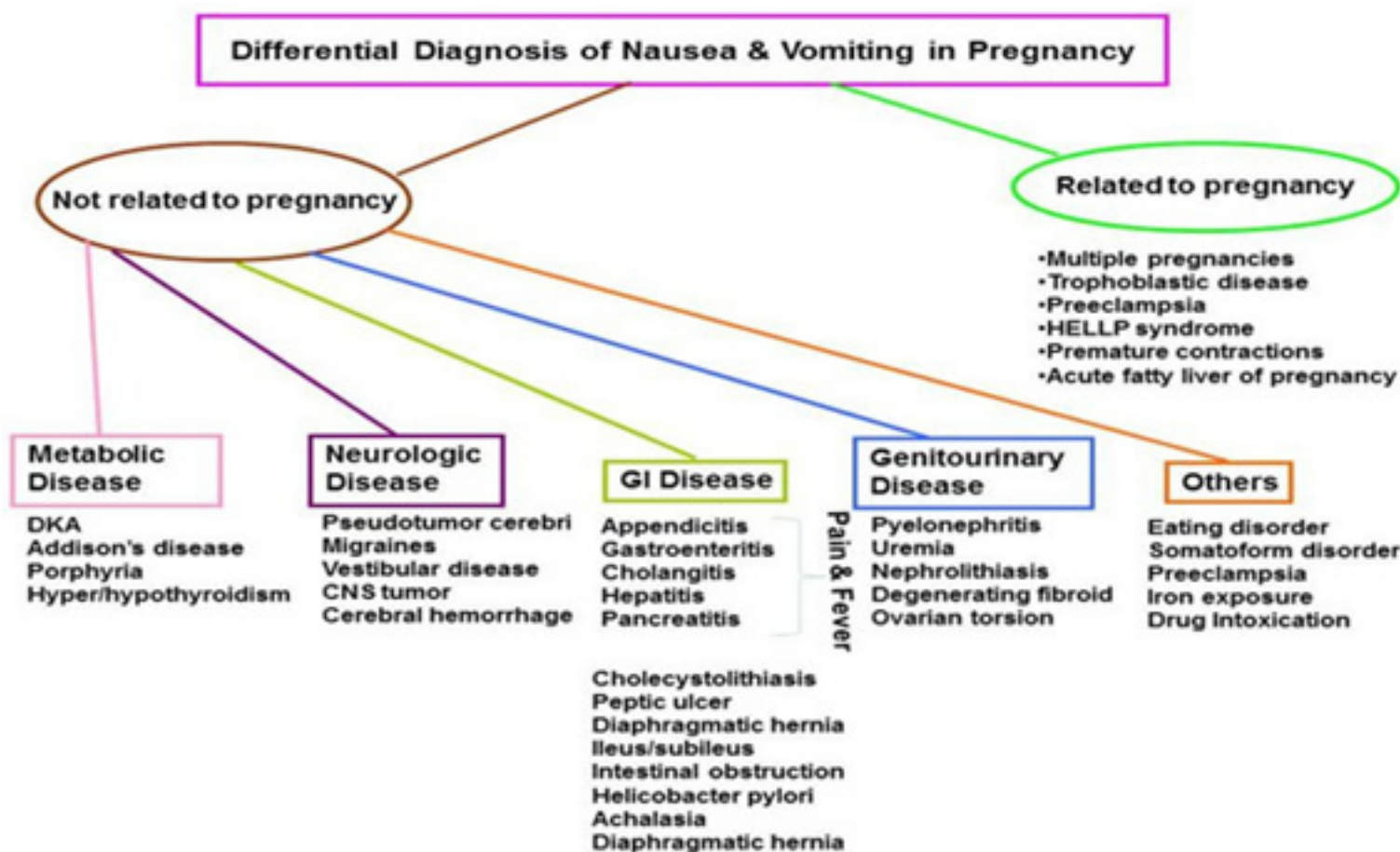
A population-based cohort study of all deliveries in Nova Scotia, Canada between 1988 and 2002 showed that the overall rate of admission for hyperemesis was 0.8% among a total of 157,922 deliveries. These women had a history of hyperthyroid disorders, psychiatric illness, previous molar pregnancy, pre-existing diabetes, gastrointestinal disorders and asthma and these were all statistically significant risk factors for hyperemesis as noted in this study(7). In another study in Egypt, the most common risk factors of HG were gastrointestinal diseases, urinary tract infection and multiple pregnancy(3).

In a retrospective cohort study in the Eastern Asian population, they found a higher incidence of hyperemesis gravidarum. Small pre-pregnancy body habitus increased the risk of hyperemesis gravidarum (8). Women under the age of 30, with Asian or Black ethnicity and those living in more socioeconomically deprived areas were more likely to be admitted for HG. Again, multiple pregnancies and female fetal sex were also associated with a significantly increased risk of HG as was history of HG in a previous pregnancy and pre-existing and gestationally developing comorbidities (9).

Diagnosis

HG is typically characterized by severe nausea and vomiting that causes dehydration and imbalances of fluid and electrolytes. This subsequently disturbs nutritional intake and metabolism, and can cause physical and psychological debilitation often requiring admission. The onset of vomiting usually occurs within the first 12 weeks of pregnancy. The Fairweather criteria define HG as vomiting more than three times a day, weight loss, ketonuria, electrolyte imbalance and volume depletion, with typical onset at 4–8 weeks of pregnancy and can continue to weeks 14–16 of pregnancy(5).

The International Statistical Classification of Disease and Related Health Problems ICD-9 Code 643 defines hyperemesis gravidarum as persistent and excessive vomiting starting before the end of the 22nd week of gestation(5). This can cause dehydration and imbalances of fluid and electrolyte, disturbs nutritional intake and metabolism, causes physical and psychological debilitation, and often necessitates hospital care (10). Investigations may reveal hyponatraemia, hypokalaemia, low serum urea, raised haematocrit, metabolic hypochloreaemic alkalosis, ketonuria, and a mild rise in liver enzymes may be seen(5). The pathophysiology has not yet been clearly clarified and it involves a complex interaction of biological, psychological, and sociocultural factors(5).



Complications:

HG can lead to maternal conditions such as dehydration, venous thrombosis and depression, while on the developing fetus; fetal growth restriction and neurodevelopmental delay. Considering these reported risks, HG can cause an under-recognized maternal and child morbidity(9).

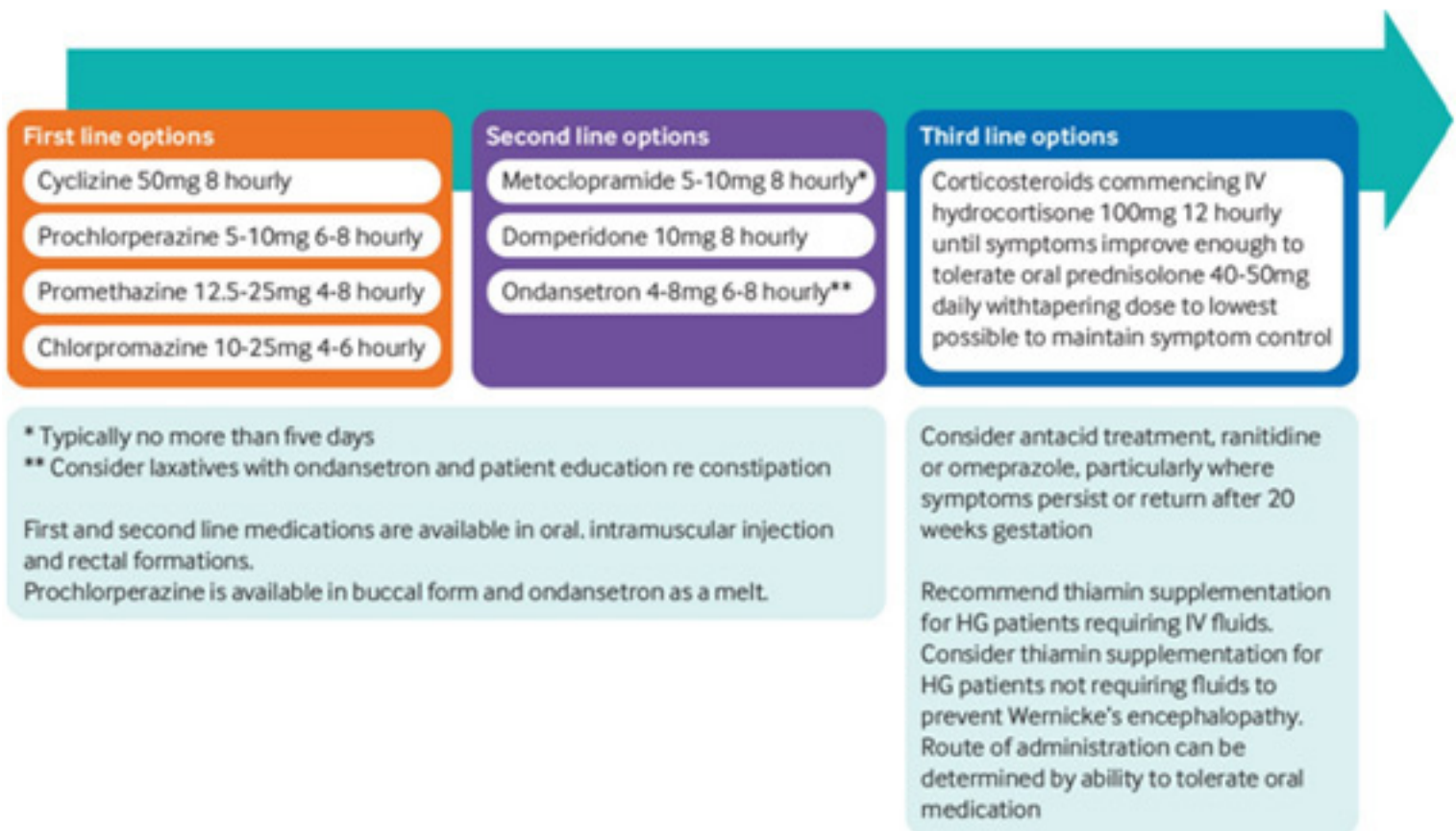
Infants of women who lost weight early in the pregnancy including in cases of HG, are at increased risk of growth restriction or low birth weight. In severe cases of HG there was an increased risk of fetal death reported, as well as preeclampsia and maternal complications associated with vomiting (e.g., esophageal rupture, retinal hemorrhage, Mallory-Weiss syndrome, pneumothorax) (12).

In the past, severe vomiting during pregnancy was often seen as an expression of maternal resentment towards her unwanted pregnancy, and the psychological stresses were perceived as maternal emotional immaturity, strong

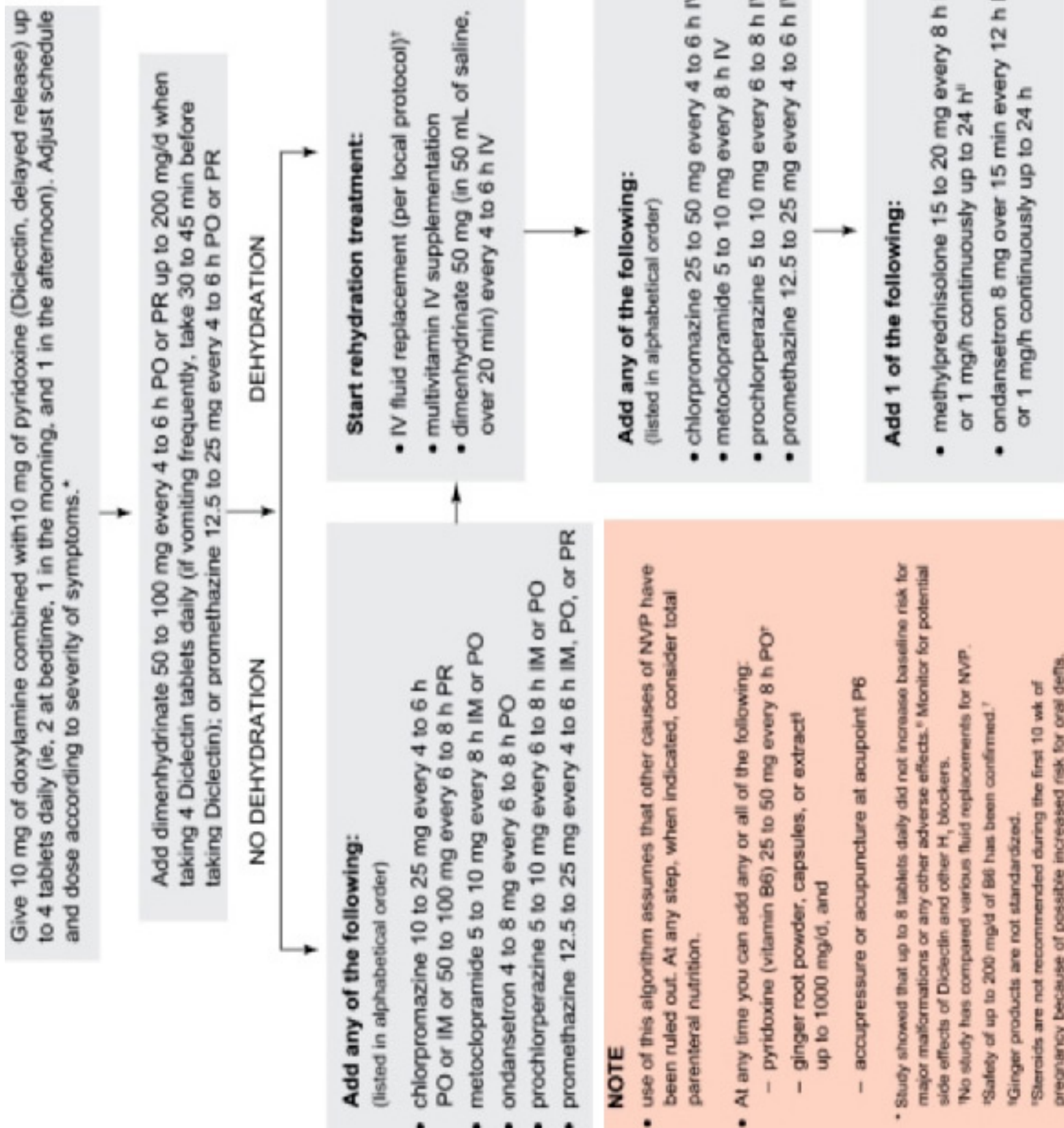
maternal dependency, or anxiety and tension related to the pregnancy. More recent research argued that the psychological symptoms were as a result of stress arising from the physical burden of hyperemesis rather than a cause(5). Due to this and possibly treatment not always being effective, it may have led to therapeutic termination in as many as 15.2% of cases. One of the main reasons given for the termination were inability to care for the other family members and herself (66.7%), fear that she or her fetus could die (51.2%), or that the baby would be abnormal (22.0%) (13).

Treatment

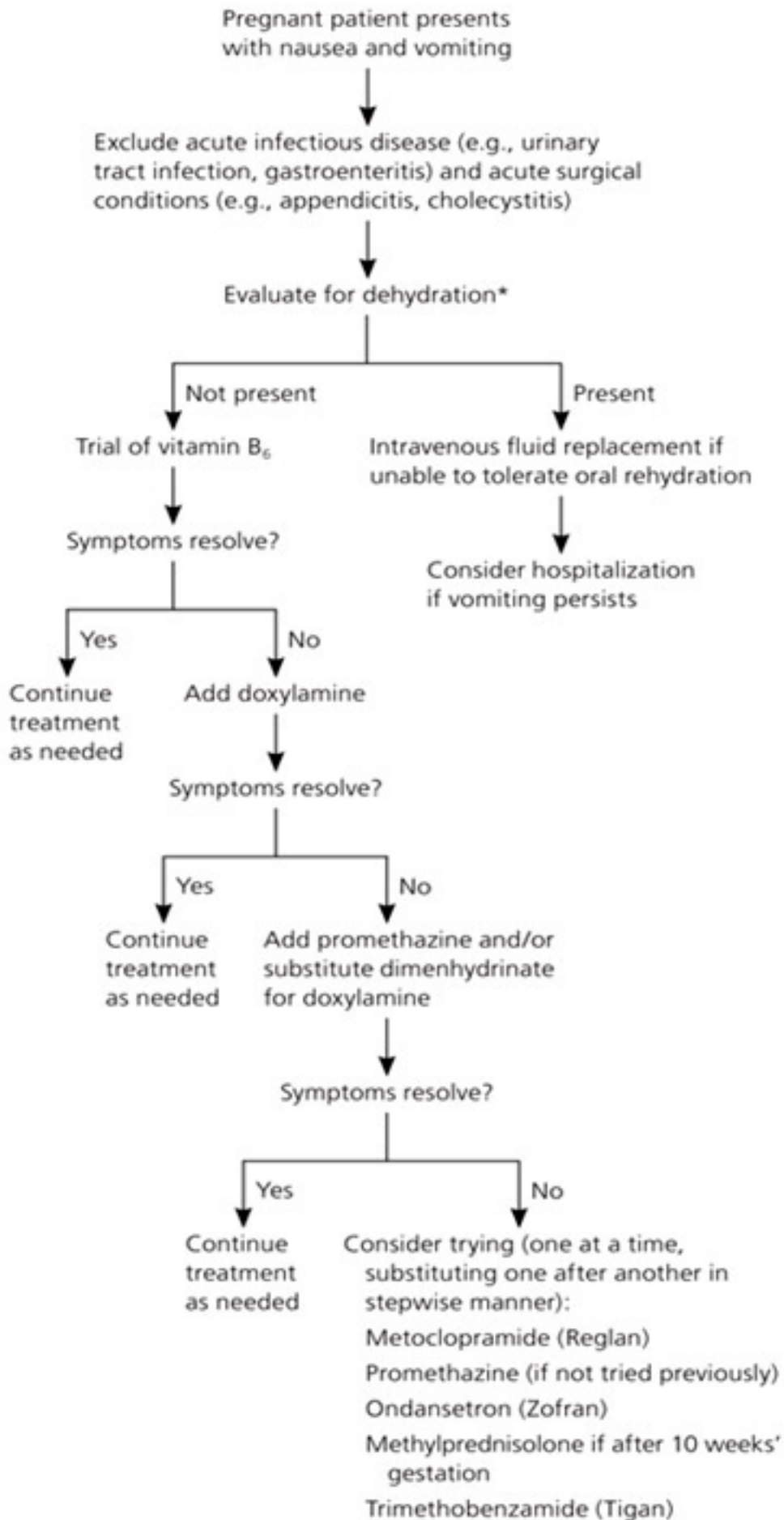
The following two algorithms summarize the medical treatment of HG including oral as well as intravenous treatment. This can be incorporated in the policy of the management of these women both in primary as well as secondary care (14).

**TREATMENT (15)**

Pharmacological treatment of nausea and vomiting of pregnancy: if no improvement proceed to next step. Abbreviations: IM intramuscular; IV intravenous; NVP nausea, vomiting of pregnancy, PO by mouth, PR by rectum



SUMMARY OF OVERALL MANAGEMENT APPROACH TO HG (12)



*—The patient should be assessed for dehydration each time she is reevaluated if symptoms have not resolved.

Conclusion

HG is an extremely debilitating condition that has physical, psychological, social and economic impact on the affected women and their families. HG can be responsible for a significant proportion of hospital admissions during pregnancy. It is still under diagnosed by the health professional community resulting in inadequate supportive care for the affected women(16). Assessment and prediction using known risk factors and previous antenatal history of HG may help improve care and reduce hospital admission(9).

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