

A LITERATURE REVIEW OF PREGNANCY SICKNESS

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E. **SUMMARY OF RESULTS & REFERENCES**

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Chapter E

43. **SUMMARY OF RESULTS FROM REFERENCES**

Index No.	Subject	Number of references Stating same result
1.	Incidence of NVP. 73.4 of births	Twenty Six references
2a.	Percentage of women with nausea only, 32.0%.	Ten references
2b.	Episodic nature of NVP.	Five references
2b.	85% of pregnant women have two episodes per day.	One reference
2b.	70% of episodes lasted 1-4 hours.	Two references
2c.	Regular daily pattern of episodes.	Four references
2d.	NVP lasts for a mean of approximately 6.5 weeks.	Five references
2e.	Nausea most distressing symptom of NVP.	Seven references
2f.	HG develops from NVP.	Six references
2g.	NVP is unusual compared to nausea associated with other conditions.	Four references
3.	<u>Incidence of vomiting 47.1% of births.</u> Increased nausea statistically correlated with increased vomiting.	Thirteen references Three references
4.	<u>Analysis of early and late onset of symptoms.</u>	
4a.	Mean day of onset NVP 39 from LMP.	Five references
4b.	13.2% of women start NVP before day 28 from LMP.	Five references
4c.	90% of women start NVP before day 56 from LMP.	Seven references
4e.	Maximum time for NVP weeks 7-13 from LMP	Six references
4f.	<u>Peak of NVP symptoms between weeks 7-9 from LMP, median week 9 after rising sharply from week 6.</u>	One reference
5.	<u>Mean week of cessation of NVP variation considerable</u> 60% end of week 12 from LMP 50% by week 14 from LMP. Range 91% ceased by end of week 16 from LMP. 90% Resolved by 22 nd week from LMP.	One reference One reference Two references
6.	25% of women who deliver a singleton normal infant have no NVP.	Sixteen references
7a.	<u>Percentage of women with NVP in morning only.</u>	Six references

7b.	13.6% 70% of women experience NVP before and after midday.	Thirteen references
7c.	<u>Correct name pregnancy sickness, not morning sickness.</u>	Eight references
7d.	Vomiting occurred in 42.6% of women before midday.	Two references
8a.	<u>NVP and HG can vary from pregnancy to pregnancy in the same woman.</u>	Five references
8b.	NVP can recur similarly from one pregnancy to the next in the same woman.	Six references
8c.	There is 50-66% chance that symptoms will be similar from one pregnancy to the next in the same woman.	Four references
8d.	Recurrence rate for HG in succeeding pregnancies 70-80%	Seven references
9a.	<u>Incidence of hyperemesis gravidarum (HG).</u> Range 0.14%-1.3% (definitions of HG vary).	Eighteen references
9b.	<u>HG. – Peak time of admission to hospital.</u> 9-11 weeks from LMP.	Twelve references
9c.	Average length of stay in hospital from HG between 3-4 days	Eleven references
9d.	Re-admission to hospital due to recurrence of HG about 25%. Re-admissions reduced by oral steroid treatment.	Thirteen references Two references
9e.	Prompt recovery from NVP after termination.	Five references
9f.	Importance of HG in early pregnancy	Eight references
10.	<u>Animals and NVP.</u> Animals do not suffer from vomiting due to pregnancy.	Five references
11.	<u>Marital status.</u> No relation between marital status and NVP.	Six references
12.	<u>Wanted or unwanted pregnancies and NVP.</u>	
12a.	Wanted pregnancies more NVP.	Five references
12b.	Unwanted pregnancies more NVP.	Two references
12c.	No difference in NVP for wanted or unwanted pregnancy.	One reference
13.	<u>Ethnic origin and NVP.</u> No difference in incidence of NVP with ethnic origin. NVP more common in negros. Low incidence of NVP in Eskimos and native African tribes. White ethnicity associated with increased vomiting. Stable diet of maize associated with no NVP.	Six references Three references One reference One reference One reference
14.	<u>Genetic factors in relation to NVP.</u> Women whose mothers suffered from NVP more likely to have NVP themselves. Maternal factor responsible for NVP. Mothers' NVP not related to study subjects' experience of NVP. Women whose sisters had NVP more likely to have NVP. Paternal contribution does not effect NVP.	Three references One reference One reference One reference One reference
15.	<u>Pre-pregnancy motion sickness in relation to NVP.</u> Women who regularly suffered from travel sickness get more NVP. No difference in emesis rate, for those who did or did	Two references Two references

	not have pre-pregnancy travel sickness. Travel sickness worse during pregnancy.	Two references
16.	<u>Smoking and NVP in the current pregnancy.</u> NVP including HG more common in non-smokers. Smoking not associated with nausea or vomiting.	Eleven references One reference
17.	<u>Alcohol intake and NVP.</u> Alcohol consumption not related to NVP. Women who consume alcohol prior to conception were at decreased risk of NVP.	Three references Two references
18.	<u>Age in relation to NVP.</u> Women of younger age, up to 26 years, likely to have increased NVP and HG. Six refer to HG. Women of older age less likely to have NVP. Women's age not related to NVP.	Thirteen references Two references Eleven references
19.	<u>Parity and NVP.</u> HG more common in primipara (nullipara). The greater the gravida the less likely to have HG. Primipara no marked increase in vomiting. Primigravida (Parity 0) decreased risk of NVP. Multipara more NVP than primipara. No relationship between NVP and parity.	Seven references Two references One reference One reference Five references Seven references
20.	<u>Women's initial weight and NVP.</u> NVP more common in heavier women. No relation between NVP and mother's body weight.	Three references Four references
21.	<u>NVP in relation to nausea when previously taking an oral contraceptive.</u> Women who had nausea with an oral contraceptive more likely to have NVP. Four statistically significant at the P<0.05 level. A history of nausea when taking an oral contraceptive was unrelated to NVP.	Five references One reference
22.	<u>Pre-pregnancy diabetes in relation to NVP.</u> No increase in NVP in diabetic women.	Four references
23.	<u>HG as a cause of Maternal Mortality.</u> 1925-1936 – 369 cases of HG, 15 maternal deaths. 1955-1959 – no maternal deaths.	One reference Four similar references
24.	<u>HG more common with Hydatidiform Moles than normal pregnancy.</u> Excessive vomiting doesn't occur in trophoblastic diseases.	Eight references One reference
25.	<u>NVP and previous unsuccessful pregnancy. Abortion, stillbirth and neonatal death.</u> Increased NVP. Not related to NVP.	Four refs, 3 refer to HG Four references
26.	<u>NVP in relation to miscarriage.</u> There is a lower incidence or severity of NVP in pregnancies resulting in a spontaneous miscarriage.	Eighteen references
27.	<u>Reduced maternal weight gain related to NVP and HG.</u> NVP not related to maternal weight gain. HG associated with reduced weight gain.	Two references Four references
28.	<u>Pre-eclamptic Toxaemia (P.E.T.) in the current pregnancy and NVP or HG.</u> NVP not increased in women who later develop P.E.T. High incidence of HG in eclamptic patients.	Eight references One reference

	Modest association between severe vomiting and P.E.T.	One reference
29.	<u>Intra-Uterine Growth Retardation and NVP or HG.</u> Severe HG associated with intra-uterine growth retardation. HG not associated with intra-uterine growth retardation. No associated between freedom from NVP and intra-uterine growth retardation.	Three references Two references One reference
30.	<u>Length of pregnancy (< 37 weeks) and NVP.</u> Women with HG and NVP not likely to experience delivery before 37 weeks. Moderate increase in somewhat short pregnancies in HG.	Sixteen references One reference
31.	<u>Sex of baby and NVP.</u> No association between NVP and sex of baby. In Hyperemesis Gravidarum more female infants.	Six references Five references
32.	<u>Birth weight of baby and NVP.</u> Birth weight not related to NVP. HG associated with average birth weight babies. Severe HG associated with low birth weight babies. Absence of NVP is associated with low birth weight babies.	Ten references Seven references Four references Three references
33.	<u>Twins and Hyperemesis Gravidarum (HG).</u> Increased incidence of HG in twin pregnancies. Increased incidence of NVP with twin pregnancies	Four references Four references
34.	<u>Placental weight and NVP.</u> NVP not associated with placental weight. There was a positive correlation for heavier placental weight and increased total hours of nausea.	Three references Two references
35.	<u>Fetal abnormality and Hyperemesis Gravidarum or NVP.</u>	
35a.	Fetal abnormalities associated with HG.	Seven references
35b.	Specific fetal abnormalities associated with HG. One abnormality from each of the seven references used at 35a.	Seven deformities
35c.	Specific fetal abnormalities <u>less</u> likely to be associated with HG.	Four references
35d.	No increased incidence of fetal deformity for mothers who have HG.	Eight references
35e.	No increased incidence of fetal abnormality and NVP.	Four references
35f.	No significant association with freedom from nausea with fetal abnormality. <u>Conclusion:-</u> The spread of evidence in these papers suggests there is no positive correlation between NVP or HG and specific congenital abnormalities.	Two reference
35g.	In all pregnancies there is a base line risk of 1-3 % of the baby having a major congenital abnormality at birth.	Eight references
36.	<u>Stillbirth, Perinatal Mortality and NVP in current pregnancy.</u> No increased risk of stillbirth or perinatal mortality with NVP or HG. Significantly <u>reduced</u> risk of stillbirth with HG. No significant association for <u>freedom from nausea</u> and	Seven references One reference One reference

	stillbirth. Higher neonatal and perinatal mortality rates in the absence of nausea and vomiting.	One reference
37.	Development of an increased number of or more pronounced food cravings associated with NVP.	Three references
37a.	Food aversion in pregnancy associated with increased NVP.	Five references
38.	<u>Effects of taking caffeine and NVP.</u> Increased caffeine intake increased NVP. Increased caffeine intake, associated with lower risk of NVP.	Nine references One reference
39.	<u>Factors which improve symptoms of NVP.</u> Eating (before nausea starts and when one feels hungry, even when nauseous). Getting more rest. Frequent small meals Lying down. Positional changes avoided. Minimise odours. Getting fresh air. Let them have their cravings. Nothing helps. Ginger. Medication.	Eleven references Eight references Seven references Five references Four references Five references Three references Four references Two references Two references
40.	<u>Factors which make NVP worse.</u> <u>Increased or altered olfactory sensation.</u> <u>Examples:</u> Fatty or Cooking smells. Drinking or the smell of tea or coffee. Cigarette smoke. Perfume. <u>Other factors;</u> Positional changes. Being hungry. Fatigue Various foods, e.g. meat, fish, fatty or oily foods.	Six references Ten references Six references Four references Four references Five references Four references Two references Three references
41.	<u>Time lost from work due to NVP</u> very significant. Approximately 30% of women need to take time off work.	Ten references Five references
42.	<u>Adverse effects of severe NVP on quality of pregnant women's lives.</u>	Fifteen references
42a.	<u>NVP assessed for treatment.</u> NVP needs treatment. Preferably early treatment of NVP advisable NVP does not need treatment.	Twelve references Eight references One reference

44. **FACTORS RELATED SIGNIFICANTLY TO NAUSEA AND VOMITING OF PREGNANCY (NVP) OR HYPEREMESIS GRAVIDARUM (HG) WITH A BALANCE OF AT LEAST FOUR REFERENCES GIVING A POSITIVE OR**

ADVERSE RELATION TO NVP OR HG

Index No.	Total Number of References
1. Incidence of NVP, 73.4% of births.	26
2a. Incidence of nausea only: 32.0% of women with NVP.	10
2b. Episodic nature of nausea in NVP.	5
2c. Regular daily pattern of NVP.	4
2d. NVP last for a mean of approximately 6.5 weeks.	5
2e. Nausea the most distressing symptom of NVP.	7
2f. HG develops from NVP.	6
2g. Nausea of NVP unusual compared to nausea with other conditions	4
3. Incidence of vomiting 47.1% of births.	13
4. Mean day of onset of NVP 39 from LMP.	5
13.2% of women start NVP before day 28 from LMP.	5
90% of women start NVP before day 56 from LMP.	5
5. Mean day of cessation of NVP. Variation considerable, range 91% ceased by end of week 16 or by 90% ceased by week 22.	9
6. 25.6% of women who delivered a singleton normal infant had no NVP	16
7a. Percentage of women with NVP in the morning only: 13.6%.	6
7b. NVP most commonly occurs before and after midday.	13
7c. <u>Correct name pregnancy sickness not morning sickness.</u>	8
8a. NVP can vary from pregnancy to pregnancy in the same woman.	5
8b. NVP can recur similarly from one pregnancy to the next in the same woman.	6
8c. 50-66% chance that NVP will be similar from one pregnancy to the next in the same woman.	4
8d. Recurrence rate of HG for succeeding pregnancies between 70 – 80%	7
9a. Incidence of HG, range 0.14%-1.3% of births.	18
9b. HG peak time of admission to hospital 9-11 weeks from LMP.	12
9c. Length of stay in hospital 3 to 4 days.	11
9d. Re-admission to hospital 25%.	13
9e. Prompt recovery after termination or delivery.	5
9f. Importance of HG in early pregnancies.	8
10. <u>Animals</u> do not suffer vomiting due to pregnancy.	5
11. <u>Marital status</u> not related to NVP.	6
13. No difference in incidence of NVP with <u>ethnic origin</u> .	6
16. NVP more common in <u>non-smokers</u> .	13
21. Nausea when previously taking an <u>oral contraceptive</u> positively related to NVP.	5
22. No increase in NVP in <u>diabetic women</u> compared to non-diabetic women.	5
24. HG more common with <u>Hydatidiform Moles</u> than in normal pregnancy.	8
26. <u>Lower occurrence or lower severity</u> of NVP in pregnancies resulting in a <u>spontaneous miscarriage</u> .	18
28. NVP not <u>increased</u> in women who later develop <u>pre-eclamptic</u> toxemia.	8
30. Women with HG or NVP <u>not likely</u> to experience delivery <u>before 37 weeks</u> .	16

32a.	NVP not related to birth weight of baby.	10
32b.	HG associated with average birth weight babies.	7
32c.	<u>Severe HG</u> associated with low birth weight babies.	4
33.	Increased incidence of HG or NVP in <u>twin pregnancy</u> .	8
35g.	In all pregnancies there is a base line risk of 1-3% of the baby having a major congenital abnormality at birth.	8
36.	<u>No increased risk of Stillbirth or Perinatal Mortality</u> associated with NVP or HG of the current pregnancy.	7
37.	Development of <u>pronounced food</u> cravings associated with NVP.	5
37a.	Food aversions associated with increased NVP.	5
38.	Caffeine consumption makes NVP worse.	9
39.	Factors which <u>improve NVP</u> .	
	Eating before nausea starts and when hungry.	11
	Getting more rest.	8
	Lying down when nauseated, and especially after meals.	5
	Frequent small meals.	7
	Minimise odours.	4
	Getting fresh air.	5
	Nothing helps.	4
40.	Factors which make <u>NVP worse</u> . <u>Increased olfactory sensation</u>	6
	Fatty or cooking smells.	10
	Drinking or smell of tea or coffee.	6
	Cigarette smoke.	4
	Perfume.	4
	<u>Other factors</u>	
	Positional changes.	5
	Being hungry.	4
	Which prevent women from resting	7
41.	<u>Time lost</u> from work due to NVP significant.	10
42.	Adverse effects of severe NVP on <u>quality of pregnant women's lives</u> .	15
42a.	NVP needs <u>treatment</u> .	12
	Early treatment of NVP advisable.	8

45. **FACTORS IN WHICH THERE IS NOT A BALANCE OF FOUR REFERENCES STATING THE SAME POSITIVE OR NEGATIVE RELATION TO NVP OR HG**

Index No.	Total number of references on each subject				
	Total	Positive	Negative	Equivocal For NVP	
12.	<u>Wanted or unwanted pregnancy</u> .	8	5	2	1
14.	<u>Genetic factors</u> in relation to NVP.				

	Women whose mothers suffered from NVP more likely to have NVP.	5	4	1	0
15.	Women who get pre-pregnancy <u>motion sickness</u> get more NVP.	4	2	0	2
17.	<u>Alcohol consumption</u> unrelated to the occurrence of NVP.	5	3	2	0
18.	<u>Maternal age</u> (HG related to young age - eight papers). Younger age more NVP.	26	15	0	11
19.	<u>Parity</u> (NVP more common in nullipara (Eight papers).	22	9	6	7
20.	Women's <u>initial weight</u> .	7	3	4	0
25.	<u>Previous unsuccessful pregnancy</u> . (Four positive papers refer to HG).	8	4	4	0
27.	<u>Reduced maternal weight gain</u> in current pregnancy. HG associated with reduced weight gain in all four papers.	6	4	0	2
29.	<u>Intra-uterine growth retardation</u> . Severe HG associated with reduced growth retardation in three papers. HG not associated with IGR in two papers.	6	3	2	1
31.	<u>Sex of baby</u> . No association between NVP and sex of baby. 6 papers. HG associated with girls. 5 papers.	11	5	0	6
34.	<u>Placental weight</u> . Increased NVP associated with heavier placentas.	5	2	3	0
35.	<u>Fetal abnormality and HG or NVP</u> . Fetal abnormality associated with HG. 7 papers but no repeated specific abnormality. No increased fetal abnormality associated with HG. 7 papers. No increased fetal deformity associated with NVP. 3 papers.	19	0	12	7

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* Relate the symptoms of NVP to significant factors in Women's personal and obstetric histories.