

Hyperemesis gravidarum is associated with oxidative stress

Vladimir Fait ¹, Shifra Sela, Ela Ophir, Samer Khoury, Jacob Nissimov, Michael Tkach, Yael Hirsh, Samiya Khotaba, Lidiya Tarasova, Moshe Oettinger

Affiliations [expand](#)

PMID: 11938483 DOI: [10.1055/s-2002-23554](#)

Abstract

Hyperemesis gravidarum (HEG), associated with pregnancy, is a severe form of nausea and vomiting causing decrease in nutrient antioxidants. Hence, we hypothesize that oxidation injury may be involved in the pathogenesis of HEG. Plasma levels of the ubiquitous antioxidant, reduced glutathione (GSH) may serve as a sensitive measure for systemic oxidative stress. Women with pregnancies complicated by HEG (study group) were compared with pregnant women without HEG (pregnant control group) and with healthy nonpregnant women (nonpregnant control group). Plasma GSH levels were determined in the study group at the time of admission to hospital, and when the vomiting had ceased, it was compared with those of the two control groups. Plasma GSH levels were significantly higher in the pregnant control group than in nonpregnant controls (6.13 +/- 2.9 microM vs. 1.01 +/- 0.3 microM p <0.01). In contrast, values in the HEG women at the time of admission were significantly lower than the pregnant controls (3.12 +/- 1.6 microM, p <0.01). At the second sampling, when the women had ceased vomiting, plasma GSH values were higher than at the acute stage of the illness and were no longer significantly different from the pregnant control group (4.43 +/- 1.6 microM). Low values of plasma GSH in HEG patients suggest that oxidative stress is associated with this condition.

[PubMed Disclaimer](#)

Similar articles

Serum lipid peroxidation and antioxidant potential levels in hyperemesis gravidarum.

Güney M, Oral B, Mungan T.

Am J Perinatol. 2007 May;24(5):283-9. doi: 10.1055/s-2007-981429. Epub 2007 May 18.

PMID: 17514602

Elevated circulating nitric oxide levels correlates with enhanced oxidative stress in patients with hyperemesis gravidarum.

Beyazit F, Türkön H, Pek E, Ozturk FH, Ünsal M.

J Obstet Gynaecol. 2018 Jul;38(5):668-673. doi: 10.1080/01443615.2017.1383371. Epub 2018 Feb 1.

PMID: 29390905

Relation between plasma adenosine and serum TSH levels in women with hyperemesis gravidarum.

Murata T, Suzuki S, Takeuchi T, Takeshita T.

Arch Gynecol Obstet. 2006 Mar;273(6):331-6. doi: 10.1007/s00404-005-0091-1. Epub 2005 Nov 15.

PMID: 16292579

Metabolic crisis: hyperemesis gravidarum.

Snell LH, Haughey BP, Buck G, Marecki MA.

J Perinat Neonatal Nurs. 1998 Sep;12(2):26-37.

PMID: 9782882 Review.

Hyperemesis gravidarum: literature review.

Philip B.

WMJ. 2003;102(3):46-51.

PMID: 12822290 Review.

[See all similar articles](#)

Cited by

Increasing nausea and vomiting of pregnancy is associated with sex-dependent differences in early childhood growth: the GUSTO mother-offspring cohort study.

Ong J, Sadananthan SA, Soh SE, Ng S, Yuan WL, Aris IM, Tint MT, Michael N, Loy SL, Tan KH, Godfrey KM, Shek LP, Yap F, Lee YS, Chong YS, Chan SY.

BMC Pregnancy Childbirth. 2021 Aug 22;21(1):578. doi: 10.1186/s12884-021-04024-9.

PMID: 34420517 **Free PMC article.**

Riding the Rhythm of Melatonin Through Pregnancy to Deliver on Time.

McCarthy R, Jungheim ES, Fay JC, Bates K, Herzog ED, England SK.

Front Endocrinol (Lausanne). 2019 Sep 13;10:616. doi: 10.3389/fendo.2019.00616. eCollection 2019.

PMID: 31572299 **Free PMC article.** Review.

Comparison of Serum Ykl-40 and Ischemia Modified Albumin Levels Between Pregnant Women with Hyperemesis Gravidarum and Normal Pregnant Women.

Bulanik M, Sağsöz N, Sayan CD, Yeral Mİ, Kısa Ü.

Med Arch. 2019 Apr;73(2):97-100. doi: 10.5455/medarh.2019.73.97-100.

PMID: 31391695 [Free PMC article.](#)

Vitamins A and E during Pregnancy and Allergy Symptoms in an Early Childhood-Lack of Association with Tobacco Smoke Exposure.

Gromadzinska J, Polanska K, Kozłowska L, Mikołajewska K, Stelmach I, Jerzyńska J, Stelmach W, Grzesiak M, Hanke W, Wasowicz W.

Int J Environ Res Public Health. 2018 Jun 12;15(6):1245. doi: 10.3390/ijerph15061245.

PMID: 29895780 [Free PMC article.](#)

Dynamic thiol-disulfide homeostasis in hyperemesis gravidarum.

Ergin M, Cendek BD, Neselioglu S, Avsar AF, Erel O.

J Perinatol. 2015 Oct;35(10):788-92. doi: 10.1038/jp.2015.81. Epub 2015 Jul 9.

PMID: 26156064

[See all "Cited by" articles](#)

MeSH terms

Adult

Female

Glutathione / blood

Humans

Hyperemesis Gravidarum / blood

Hyperemesis Gravidarum / metabolism*

Oxidative Stress*

Pregnancy

Substances

Glutathione

Related information

[MedGen](#)

[PubChem Compound](#)

[PubChem Compound \(MeSH Keyword\)](#)

[PubChem Substance](#)

LinkOut - more resources

Full Text Sources

[Georg Thieme Verlag Stuttgart, New York](#)

[Ovid Technologies, Inc.](#)