
**High levels of NK cells in the peripheral blood of patients affected with anti-phospholipid syndrome and recurrent spontaneous abortion: a potential new hypothesis.**


Objectives. No data regarding phenotypic assets of circulating lymphocytes in anti-phospholipid syndrome (APS) are reported in the literature. Role of anti-phospholipid antibodies (aPL) in recurrent spontaneous abortion (RSA) remains uncertain, while natural killer (NK)-cells are involved in RSA pathogenesis. In this study, patients affected with APS without RSA, APS with RSA and RSA without aPL were studied for NK-cell subpopulation to evaluate its role in abortive events typical of APS. Methods. NK-cell levels in peripheral blood of APS patients without RSA (n = 28) and in APS-RSA patients (n = 25) were evaluated by means of flow cytfluorimetry. NK-cells levels were evaluated also in RSA without aPL associated with either endocrine (n = 86), anatomic (n = 30) or idiopathic (n = 77) conditions and in 42 healthy women. Results. High NK levels were found in 14/25 (56%) APS-RSA patients. Among these patients, all except one aborted before the 10th gestational week (GW), while among the remaining patients all except one aborted after the 10th GW. NK mean levels were significantly higher in APS-RSA than in all the other conditions studied, including healthy subjects, except idiopathic RSA. Conclusions. Our results demonstrate that the numbers and proportions of NK-cells are significantly higher in patients with RSA with APS than in APS without RSA. Increased numbers of NK-cells correlate with reduced gestational age at abortion in patients with APS-RSA. These data lead to a hypothesis that NK-cells contribute to the development of RSA in patients with APS. NK-cells might precipitate damage initiated by aPL or they might cause pathology in RSA independent of aPL.


**What is the role of regulatory T cells in the success of implantation and early pregnancy?**

J Assist Reprod Genet. 2007 Aug 1; [Epub ahead of print].

**PROBLEM:** The immune system is well controlled by the balance between immunostimulation and immunoregulation. CD4(+)CD25(+) regulatory T (Treg) cells and an enzyme called indoleamine-2, 3-dioxygenase (IDO) mediate maternal tolerance of the allogeneic fetus. Treg cells, therefore, may prevent early pregnancy loss due to
maternal 'rejection.' METHODS: The latest understanding of tolerance during pregnancy is reviewed. RESULTS AND CONCLUSIONS: Recent data show that CD4(+)CD25(+) Treg cells play essential roles in the induction and maintenance of tolerance, and that they augment the IDO activity in dendritic cells and macrophages. Therefore, CD4(+)CD25(+) Treg cells and IDO enzyme may cooperate in the induction of tolerance during pregnancy. Treg deficiency is associated with very early post-implantation loss and spontaneous abortion in animal models, and low Treg levels are associated with recurrent miscarriages in humans.

Full-text available at: http://www.springerlink.com/ (not a U.S. Government site)

Potential confounding by exposure history and prior outcomes: An example from perinatal epidemiology.
Epidemiology. 2007 Jul 31;Publish Ahead of Print [Epub ahead of print].

Prior pregnancy outcomes, such as spontaneous abortion and preterm birth, are often predictive of future pregnancy outcomes. Therefore, many researchers adjust for reproductive history. Although this adjustment may be appropriate for a predictive model, it is not necessarily appropriate when the goal is to obtain an unbiased estimate of the effect of exposure on disease. Reproductive history may seem to meet the conventional criteria for confounding because it is unlikely to be on the causal pathway between exposure and current outcome, is often associated with current outcome, and may be associated with exposure as well. However, whether reproductive history is a confounder or not depends on the underlying reason for its associations with exposure and current outcome. Thus, conventional methods for assessing confounding are often inadequate. Directed acyclic graphs (DAGs) can be used to evaluate complex scenarios for confounding when the research question is clearly defined with respect to the exposure, the outcome, and the effect estimate of interest. Special care is required when reproductive history affects future exposure. We use 5 DAGs to illustrate possible relations between reproductive history and current outcome. We assess each DAG for confounding, and identify the appropriate analytic technique. We provide a numeric example using data from the Collaborative Perinatal Project. There is no single answer as to whether reproductive history should be included in the model; the decision depends on the research question and the underlying DAG.

Full-text available at: http://meta.wkhealth.com/ (not a U.S. Government site)

Int J Biochem Cell Biol. 2007 Jun 30; [Epub ahead of print].

Recurrent spontaneous abortion occurs in approximately 3% of women with diagnosed pregnancies. The etiology in approximately 40% of recurrent spontaneous abortion is unexplained. To elucidate unexplained recurrent spontaneous abortion at the molecular level, we systemically identified differentially expressed genes during implantation...
window period in unexplained recurrent spontaneous abortion and characterized their functions in a human endometrial cell line. Expression levels of implantation-related genes selected from previously reported, various microarray data were determined to identify differentially expressed genes between normal fertile and unexplained recurrent spontaneous abortion subjects by real-time quantitative RT-PCR. Of 29 implantation-related genes, the transcript levels of cellular retinoic acid binding protein 2 and olfactomedin 1 were higher, whereas that of complement component 4 binding protein alpha was lower in subjects with unexplained recurrent spontaneous abortion, compared to normal fertile subjects. A correlation was evident between the transcript and protein levels of complement component 4 binding protein alpha and cellular retinoic acid binding protein 2. Expression of cellular retinoic acid binding protein 2 was positively correlated with retinoic acid-related genes in normal fertile subjects, but no significant association was observed in unexplained recurrent spontaneous abortion subjects. In relation to complement component 4 binding protein alpha, C5a receptor protein level was significantly higher in subjects with unexplained recurrent spontaneous abortion. Stable expression of cellular retinoic acid binding protein 2 and olfactomedin 1 in a human endometrial cell line inhibited cell growth and induced cell accumulation in the S and G(2)-M phase fractions, but did not trigger apoptosis. This study represents the first systematic identification of differentially expressed genes in unexplained recurrent spontaneous abortion. Defective cell growth by the differentially expressed genes suggests their implication in implantation failure in women with unexplained recurrent spontaneous abortion.


Whitcomb BW, Schisterman EF, Klebanoff MA, Baumgarten M, Rhoton-Vlasak A, Luo X, Chegini N. 

Circulating chemokine levels and miscarriage. 

Evidence suggests that chemokines, proteins involved in regulation of inflammation and immune response, may have a regulatory function in pregnancy. The authors hypothesized that circulating levels of chemokines are associated with increased risk of miscarriage. Serum samples were obtained from women in the Collaborative Perinatal Project cohort who had had a miscarriage (n = 439) and controls (n = 373) matched by gestational age at sample collection. Concentrations of interleukin 8, epithelial cell-derived neutrophil-activating peptide (ENA)-78, macrophage inhibitory protein (MIP)-1alpha, MIP-1beta, monocyte chemotactic protein 1, and RANTES (regulated upon activation, normal T-cell-expressed, and secreted) were determined by multiplex assays, and values were standardized using the standard deviation among controls. Conditional logistic regression was used to model the relation between chemokine levels and risk of miscarriage. In multivariable analysis using all available data, the authors did not observe significant associations between any of the evaluated chemokines and miscarriage risk. In analyses using subsets of the study population based on the collection-outcome interval, elevated ENA-78 levels were associated with increased risk of miscarriage as the collection-outcome interval increased; the adjusted odds ratio was 1.25 (95% confidence
interval: 1.04, 1.49) for samples collected more than 35 days prior to pregnancy outcome. The observation regarding ENA-78, which has roles in regulation of angiogenesis and leukocyte recruitment, suggests a possible role for this chemokine as an early indicator of miscarriage risk.


Curtis C.
**Meeting health care needs of women experiencing complications of miscarriage and unsafe abortion: USAID’s postabortion care program.**

Each year, an estimated 210 million women become pregnant. Worldwide, more than one fourth of these pregnancies will end in abortion or an unplanned birth. While many abortions may result from the desire to delay or avoid pregnancy, 15% to 20% of pregnancies will end in miscarriage or stillbirth with some causative agents being malaria, HIV/AIDS, and physical violence. Postabortion care (PAC) is needed to provide treatment for complications caused by incomplete or spontaneous abortion and critical family planning counseling and services to prevent future unplanned pregnancies that may result in repeat abortions. In 2003, the United States Agency for International Development (USAID) initiated a 5-year strategy wherein seven countries were provided financial funding and technical assistance. Since 2003, more than 3000 women have been seen in health centers and health posts for PAC services; more than 14,000 community members have received messages on unsafe abortion; family planning, and complications of unsafe abortion and miscarriage; and more than 600 documents were reviewed for inclusion in a global PAC resource package. This package has been used for developing Cambodia's national PAC policy and for developing patient education materials and provider job aids in Cambodia and Tanzania. These promising methodologies will be replicated in other countries.


**Intracellular cytokine expression of peripheral blood natural killer cell subsets in women with recurrent spontaneous abortions and implantation failures.**
Fertil Steril. 2007 May 4; [Epub ahead of print].

**OBJECTIVE:** To investigate the cytokine expression by peripheral blood natural killer (NK) cells of women with recurrent spontaneous abortion (SAB) or implantation failures. 
**DESIGN:** Prospective cohort study. 
**SETTING:** University clinic. 
**PATIENT(S):** Twenty-five women with recurrent SAB, 20 women with implantation failures, and 15 healthy controls. 
**INTERVENTION(S):** None. 
**MAIN OUTCOME MEASURE(S):** Cytokine expression (interferon-gamma, tumor necrosis factor [TNF]-alpha, interleukin [IL]-4, IL-5, IL-10, IL-13, granulocyte-macrophage colony-stimulating factor [GM-CSF]) in NK cells and their subsets (CD56(dim) and CD56(bright)). 
**RESULT(S):** Proportion (percentage) of CD56(bright)/interferon-gamma(+)/TNF-alpha(+) cells was significantly
higher in women with recurrent SAB and implantation failures as compared with that of healthy controls. Proportion of CD56(bright)/IL-4(+)/IL-10(+) cells was very low (<2%) in all groups but was significantly lower in women with recurrent SAB than that of controls. The TNF-alpha/GM-CSF expressing CD56(bright) cell ratio was significantly higher in women with recurrent SAB and implantation failures than in controls.

CONCLUSION(S): Natural killer-1 shift in peripheral blood NK cells was identified in nonpregnant women with recurrent SAB and implantation failures. Tumor necrosis factor-alpha/GM-CSF expressing CD56(bright) cell ratio can be applicable for the diagnosis of recurrent SAB or implantation failures. Further studies are needed as to whether cytokine expression of NK cells during pregnancy can affect pregnancy outcome.

Full text available at: www.sciencedirect.com (not a U.S. Government site)

Matias A, La Sala GB, Blickstein I.
Early loss rates of entire pregnancies after assisted reproduction are lower in twin than in singleton pregnancies.
Fertil Steril. 2007 May 2; [Epub ahead of print].

Case-control studies on plurality dependent spontaneous embryonic loss rates after assisted reproduction found that twin pregnancies have a two to five times lower miscarriage rate of the entire pregnancy compared with singletons.

Full text available at: www.sciencedirect.com (not a U.S. Government site)

Preconception B-vitamin and homocysteine status, conception, and early pregnancy loss.
Am J Epidemiol. 2007 May 2; [Epub ahead of print].

Maternal vitamin status contributes to clinical spontaneous abortion, but the role of B-vitamin and homocysteine status in subclinical early pregnancy loss is unknown. Three-hundred sixty-four textile workers from Anqing, China, who conceived at least once during prospective observation (1996-1998), provided daily urine specimens for up to 1 year, and urinary human chorionic gonadatropin was assayed to detect conception and early pregnancy loss. Homocysteine, folate, and vitamins B(6) and B(12) were measured in preconception plasma. Relative to women in the lowest quartile of vitamin B(6), those in the third and fourth quartiles had higher adjusted proportional hazard ratios of conception (hazard ratio (HR) = 2.2, 95% confidence interval (CI): 1.3, 3.4; HR = 1.6, 95% CI: 1.1, 2.3, respectively), and the adjusted odds ratio for early pregnancy loss in conception cycles was lower in the fourth quartile (odds ratio = 0.5, 95% CI: 0.3, 1.0). Women with sufficient vitamin B(6) had a higher adjusted hazard ratio of conception (HR = 1.4, 95% CI: 1.1, 1.9) and a lower adjusted odds ratio of early pregnancy loss in conceptive cycles (odds ratio = 0.7, 95% CI: 0.4, 1.1) than did women with vitamin B(6) deficiency. Poor vitamin B(6) status appears to decrease the probability of conception and to contribute to the risk of early pregnancy loss in this population.
**Work schedule during pregnancy and spontaneous abortion.**
Epidemiology. 2007 May;18(3):350-5.

Background: There is inconsistent evidence as to whether work schedule (including rotating shifts and night work) can affect reproductive outcomes. Methods: We investigated the association between work schedule and risk of spontaneous abortion in U.S. nurses. The Nurses' Health Study II is a prospective cohort study established in 1989. In 2001, information about occupational activities and exposures during pregnancy was collected from female nurses for the most recent pregnancy since 1993. Of 11,178 eligible respondents, 9547 (85%) indicated willingness to participate in the occupational study, and 8461 of those (89%) returned the questionnaire, for an overall participation rate of 76%. Of these, 7688 women had pregnancies that were eligible for analysis. Results: Participants reported 6902 live births and 786 (10%) spontaneous abortions. Compared with women who reported usually working "days only" during their first trimester, women who reported usually working "nights only" had a 60% increased risk of spontaneous abortion (RR = 1.6; 95% confidence interval [CI] = 1.3-1.9). A rotating schedule, with or without night shifts, was not associated with an increase in risk (RR = 1.2 [CI = 0.9-1.5] and 1.0 [CI = 0.8-1.2], respectively). Women who reported working more than 40 hours per week during the first trimester were also at increased risk of spontaneous abortion (1.5; 1.3-1.7) compared with women working 21-40 hours, even after adjustment for work schedule. Conclusions: Nightwork and long work hours may be associated with an increased risk of spontaneous abortion. Further studies are needed to determine whether hormonal disturbances attributed to night work affect pregnancy outcome.

Full-text available at: [www.epidem.com](http://www.epidem.com) (not a U.S. Government site)

Velayuthaprabhu S, Archunan G, Balakrishnan K. 
**Placental thrombosis in experimental anticardiolipin antibodies-mediated intrauterine fetal death.**

Anticardiolipin (aCL) antibodies are associated with stillbirths, recurrent miscarriages and recurrent in vitro fertilization implantation failure in women. Previous animal studies have demonstrated that these antibodies can cause early fetal demise and implantation failure in mice, but most previous studies have not allowed the immunized mice to proceed to the full term of gestation. Method of study Mice were immunized with either cardiolipin alone or cardiolipin in combination with beta2-glycoprotein I (beta2GPI) and have studied the effects of these antibodies on pregnancies which were allowed to progress to term. Results Immunization with cardiolipin alone induced significant levels of anticardiolipin antibodies in mice, but immunization with a combination of cardiolipin and beta2GPI produced even higher levels of antibodies. Mice with elevated levels of...
anticardiolipin antibodies had poor pregnancy outcomes. This study confirms previous
results that anticardiolipin antibodies cause early pregnancy losses and also demonstrates
that these antibodies cause stillbirth-like late fetal demise. This study further
demonstrated that very high levels of anticardiolipin antibodies cause intrauterine death
by facilitating the thrombotic episode in placenta. Conclusions: The present study
concludes that the possible mechanism involves in stillbirth of aCL is possibly because of
the thrombotic events of placenta.

Full-text available at: www.blackwell-synergy.com/ (not a U.S. Government site)

Franssen MT, Korevaar JC, van der Veen F, Boer K, Leschot NJ, Goddijn M.
Management of recurrent miscarriage: Evaluating the impact of a guideline.
Hum Reprod. 2007 Feb 22; [E-pub ahead of print].

Background: Little is known on the actual diagnostic and therapeutic management of
recurrent miscarriage and the impact of introducing guidelines on this topic. The
objective of this study was to evaluate any changes in the management of recurrent
miscarriage among Dutch gynaecologists after the introduction of the Dutch guideline
‘Recurrent Miscarriage’ in 1999. Methods: Questionnaires were sent to all practices for
obstetrics and gynaecology in the Netherlands. Data concerned definition, diagnosis and
treatment of recurrent miscarriage. Results were compared with a similar study conducted
before the introduction of the guideline and with the recommendations in the guideline.
Results: The response rate was 83%. Regarding gestational age, only 3% of the
respondents used the definition as advised in the guideline. After the introduction of the
guideline, thrombophilia factors were tested more frequently, anticoagulants were
prescribed more frequently and more respondents reported to correct uterine
malformations. Therapies not described in the guideline, e.g. donor insemination and
oocyte donation, were still applied. Conclusions: The adherence to the Dutch guideline
‘Recurrent Miscarriage’ was rather poor, presumably due to guideline-related as well as
physician-related barriers. Too many diagnostic tests and ineffective therapeutic
interventions were performed. This study demonstrates the importance of appropriate
implementation and revision.

Full-text available at: humrep.oxfordjournals.org (not a U.S. Government site)

Lok IH, Neugebauer R.
Psychological morbidity following miscarriage.

Emerging evidence has suggested that miscarriage could be associated with significant
and possibly enduring psychological consequences. As many as 50% of miscarrying
women suffer some form of psychological morbidity in the weeks and months after loss.
About 40% of miscarrying women were found to be suffering from symptoms of grief
shortly after miscarriage, and pathological grief can follow. Elevated anxiety and
depressive symptoms are common, and major depressive disorder has been reported in
10-50% after miscarriage. Psychological symptoms could persist for 6 months to 1 year.
after miscarriage. The underlying risk factors predisposing a miscarrying woman to psychological morbidity include a history of psychiatric illness, childlessness, lack of social support or poor marital adjustment, prior pregnancy loss, and ambivalence toward the fetus. In addition, care-givers should be aware of the possible moderating effect of clinical practices such as surgical treatment and ultrasound findings on the psychological impact on a miscarrying woman. Unlike in postpartum depression, simple and effective screening measures of psychological morbidity in the context of miscarriage have not been well established. While studies have highlighted that psychological follow-up was highly desired by miscarrying women, and that psychological intervention was potentially beneficial, there is a substantial lack of randomized controlled intervention studies in this area.

Full-text available at: www.sciencedirect.com (not a U.S. Government site)

Morrissey MV.
Our first child was incompatible with life: understanding miscarriage as a lived experience.

Miscarriage as a medical experience is removed several times from the lived experience of a mother, partner and family. Often there is no space to grieve and mourn to facilitate that. In this article it will be shown that the lived experience of a miscarriage challenges the notion of care and loss forever. Ask a woman the memory is always there and very often the pain. It’s important to let the wisdom of sadness speak and emotions to flow unhurried. Emotions need to be set free. What is less appreciated is that professional carers often feel at a loss themselves and they too need love and support. Staff and relatives are sometimes in different contexts of awareness and information about diagnosis and all aspects of care often need to be translated The experience of loss is not only related to death but to loss of hope, dreams, function and handing over care to another carer. Dealing with loss is a feature of being human, but dealing with multiple losses is sadly often a part of being a practicing nurse and midwife. It is time to really appreciate what it means to live through a miscarriage. What we need now to do is move beyond a medical experience into creating a space where a woman can feel safe and loved to grieve for all that is lost and all that could have been.

Full-text available at: drogoresearch.com/ (not a U.S. Government site)

Itsekson AM, Seidman DS, Zolti M, Lazarov A, Carp HJ.
Recurrent pregnancy loss and inappropriate local immune response to sex hormones.

Problem: The cause of recurrent miscarriage is often unknown. Recurrent miscarriage may be associated with inappropriate responses to progesterone and estrogen. We examined whether the condition may be diagnosed by skin testing. Method of study: In a longitudinal prospective study, the weal and flare reaction after intradermal injection of
estradiol and progesterone was compared in 29 women with recurrent miscarriage to the response in 10 healthy women. Reactions were evaluated after 20 min, 24, and 48 hr and 5 days later. Results: Estrogen hypersensitivity was found in 23 patients, and progesterone hypersensitivity in 20 patients. No patient in the control group demonstrated sex hormone hypersensitivity. Conclusion: Recurrent pregnancy loss may be associated with inappropriate local immune responses to sex hormones. Further research is necessary into the mechanisms of hypersensitivity to estrogen and progesterone and their interactions with other systems.


Swanson KM, Connor S, Jolley SN, Pettinato M, Wang TJ.
Contexts and evolution of women’s responses to miscarriage during the first year after loss.

Descriptions of 85 women's feelings about miscarriage at 1, 6, 16, and 52 weeks were inductively coded, rank-ordered, and clustered into 3 responses: healing, actively grieving, and overwhelmed. Women who were actively grieving or overwhelmed at 1 week experienced significantly less distress from 6 weeks on. Responses at 1 week differed with regards to those who had a history of perinatal loss or went on to experience negative life events or sexual distance after loss. One year responses differed based on who was pregnant or gave birth, miscarried again, lived through a higher number of post-loss negative life events, or experienced interpersonal or sexual distance from their mate. Responses were not influenced by gestational age at loss or having other children.

Full-text available at: www3.interscience.wiley.com/ (not a U.S. Government site)

Rao KA, Pillai JR.
Recurrent pregnancy loss.

Recurrent abortions are hisheartening to the couple and also to the treating clinicians. Miscarriage is the loss of pregnancy weighing 500 g or less. Recurrent miscarriage or habitual abortion is defined as three or more consecutive abortions. Important factors involved in recurrent early pregnancy loss are genetic factors, endocrine factors, anatomic factors, immunologic factors, infectious factors and environmental factors. The factors are described in a nutshell in the text. Any severe infection that leads to bacteraemia or viraemia can cause sporadic miscarriage. Congenital uterine abnormalities have been associated most often with second-trimester pregnancy loss. As regarding management of recurrent pregnancy loss the clinician has limited options. The use of aspiration in low dose (75 mg) and heparin is beneficial in APS positive patients. Multivitamins and folic acid assume importance in thrombophilic disorders. Tender live care with regular antenatal check-ups go a great way in achieving live term pregnancy.

Full-text available at: www.jimaonline.org.in/ (not a U.S. Government site)

Background Intravenous immunoglobulin (IVIG) is a fractionated blood product whose off-label use for treating a variety of conditions, including spontaneous recurrent miscarriage, has continued to grow in recent years. Its high costs and short supply necessitate improved guidance on its appropriate applications. Objective We conducted a systematic review of randomized controlled trials evaluating IVIG for treatment of spontaneous recurrent miscarriage. Search strategy A systematic search strategy was applied to Medline (1966 to June 2005) and the Cochrane Register of Controlled Trials (June 2005). Selection criteria We included all randomized controlled trials comparing all dosages of IVIG to placebo or an active control. Data collection and analysis Two investigators independently extracted data using a standardized data collection form. Measures of effect were derived for each trial independently, and studies were pooled based on clinical and methodologic appropriateness. Main results We identified eight trials involving 442 women that evaluated IVIG therapy used to treat recurrent miscarriage. Overall, IVIG did not significantly increase the odds ratio (OR) of live birth when compared with placebo for treatment of recurrent miscarriage (OR 1.28, 95% CI 0.78-2.10). There was, however, a significant increase in live births following IVIG use in women with secondary recurrent miscarriage (OR 2.71, 95% CI 1.09-6.73), while those with primary miscarriage did not experience the same benefit (OR 0.66, 95% CI 0.35-1.26). Author's conclusions IVIG increased the rates of live birth in secondary recurrent miscarriage, but there was insufficient evidence for its use in primary recurrent miscarriage.

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Context and Objective: Recurrent spontaneous abortion (RSA) is defined as three or more consecutive pregnancy losses before 20 weeks and is associated with several etiological factors related to genetics, anatomy, hormones, infections and immunology, for example. Many cases of RSA remain unclear. New factors or their associations may influence gestational results. The aim was to identify possible single or associated causes of RSA that could predict gestational prognosis for women undergoing investigation and treatment. Design And Setting: Case-control study, at the Recurrent Abortion Outpatient Clinic, Department of Obstetrics and Gynecology School of Medicine, Universidade Estadual de Campinas (Unicamp). Methods: Two hundred and forty-six medical records of women with RSA seen at the Recurrent Abortion Outpatient Clinic, Department of Obstetrics and Gynecology School of Medicine, Universidade Estadual de Campinas (Unicamp), between 1994 and 2003, were evaluated. Data on age, obstetric history,
possible etiological factors, treatment and pregnancy outcomes were evaluated. Statistical analysis was performed using odds ratios (OR), logistic regression analysis and decision trees. Results: Two hundred and twenty-nine women were included in the study. The most frequently found etiological factors were immunological, particularly alloimmune factors (93.9%). Women with a single alloimmune factor had better gestational results (77.7% deliveries) than those with other associated factors. Autoimmune factors were associated with a higher abortion rate (OR: 4.30; 95% confidence interval, CI: 1.36-13.63). No association was found between the number of abortions prior to treatment and pregnancy results. Women aged 40 or over presented the highest rate of spontaneous abortion (OR: 5.83; 95% CI: 1.12-30.40). Conclusion: Age over 40 years old, immunological factors and two or more concomitant factors were associated with poor gestational outcomes among the women studied.

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Karri K, Thirumagal B, Bhatti NR.  
**Term delivery of the second twin after miscarriage of the first: A case report.**  

Background: Term delivery of the second twin after miscarriage of the first twin is rare. There is always a risk of preterm delivery as well as infection leading to chorioamnionitis. CASE: The second twin was delivered at term after miscarriage of the first twin at 17 weeks'gestation. The pregnancy was carefully monitored for prevention and early detection of chorioamnionitis. Delivery was delayed to 30 weeks after the miscarriage of the first twin, with a good outcome. Conclusion: Delayed delivery of the second twin with conservative management clearly is of benefit.


Engelhard IM, van den Hout MA, Schouten EG.  
**Neuroticism and low educational level predict the risk of posttraumatic stress disorder in women after miscarriage or stillbirth.**  

Objective: This study aimed to determine whether neuroticism and educational level predict posttraumatic stress disorder (PTSD) in women following an unsuccessful pregnancy. Method: Via advertisements, pregnant women with a gestational period shorter than 12 weeks were asked to participate in a study regarding their perception of pregnancy. After they had agreed, they were sent questionnaires, including a scale for neuroticism and their highest attained educational level. Every other month during the pregnancy and 1 month after the expected date of birth, they were sent brief questionnaires about the pregnancy. Participants for whom the pregnancy had ended unsuccessfully were contacted by phone and asked to participate in a follow-up study with a PTSD scale. Results: Of the 1339 women studied, 126 (9%) experienced an unsuccessful pregnancy; 8 of these dropped out of the study (response rate, 94%); 1 had
not indicated her educational level. The remaining 117 women filled out the PTSD scale after about 1 month. Thirty-one women (26%) met the DSM-IV criteria for PTSD and 86 women did not. Logistic regression analysis revealed that PTSD was significantly associated with higher neuroticism, lower educational level and longer duration of gestation. Conclusion: For patients with a high educational level and low neuroticism score, the risk of developing PTSD was negligible, while for those with a low educational level and a high score for neuroticism, the estimated risk was about 70%. Care and guidance should focus primarily on the latter group.

Full-text access available at: www.sciencedirect.com (not a U.S. Government Web site)

Geller PA, Psaros C, Kerns D.
Web-based resources for health care providers and women following pregnancy loss.

Experiencing perinatal loss can leave women and families feeling distressed, overwhelmed, and with many questions, while health care providers often lack time and may not be prepared to provide all the answers. This paper highlights the rationale for use and benefits of the Internet with this population and outlines an effort to review and select reliable Internet resources containing valid and substantial content specific to pregnancy loss. A summary table is included for distribution to women and providers.

Full-text available at: www.backwellsynergy.com (not a U.S. Government website)

Yang CJ, Stone P, Stewart AW.
The epidemiology of recurrent miscarriage: A descriptive study of 1214 prepregnant women with recurrent miscarriage.

Aim: To describe the characteristics of the prepregnant population attending the Recurrent Miscarriage Clinic (RMC) at the National Women's Hospital (NWH), Auckland, between 1986 and 2003, and to compare them with the overall obstetric booking population of the hospital. The identifying details of 1214 prepregnant women attending the RMC were obtained. Both hospital and RMC records, which were kept separately, were retrospectively reviewed for demographic information and results of diagnostic investigations. Data from Auckland residents who attended the clinic were compared with data from all Auckland women booking or delivering at NWH. RMC attendees were older than the general NWH population, but had similar parity. Clinic attendees had a higher incidence of personal and family history of antepartum haemorrhage, fetal abnormalities, stillbirths and neonatal deaths than reported rates for the general population. Chromosomal anomalies were detected in 86 women, reproductive tract anomalies were found in 142 women, and polycystic ovarian syndrome was detected in 49 women. The majority (52.7%) of women had no identifiable cause for recurrent miscarriage detected. These data support the concept of women with recurrent miscarriage being at high risk for adverse obstetric outcomes including fetal
abnormalities, stillbirths and neonatal deaths, even when the pregnancies are ongoing. We conclude that recurrent miscarriage is different from subfertility, and provide information of use in planning care for such women.

Full-text available at: www.blackwell-synergy.com (not a U.S. Government site)

Keim SA, Klebanoff MA.

Aspirin use and miscarriage risk.
Epidemiology.2006 May 23; [Epub ahead of print]

Background: Recent research has found nonsteroidal antiinflammatory drugs, including aspirin, to increase the risk of miscarriage. The objective of the present study was to evaluate the association between aspirin use and miscarriage. Methods: We conducted a case-control study using data from the Collaborative Perinatal Project. This prospective cohort study recruited approximately 54,000 pregnant women at 12 sites in the United States from 1959 to 1965. Women who had miscarriages (n = 542) were matched by clinic and time in pregnancy when they came under observation to 2587 women who had live births. Participants were interviewed at each prenatal visit. Data on aspirin use were collected prospectively by in-person interviews and medical record review. Aspirin use among controls was considered only for the duration of pregnancy when the matched cases remained pregnant. The outcome of interest was miscarriage, defined as spontaneous pregnancy loss at less than 140 days from the last menstrual period. Results: Twenty-nine percent of cases and 34% of controls used aspirin during pregnancy. Aspirin use was not associated with an increased risk of miscarriage. Adjusted odds ratios ranged from 0.64 to 0.92 (95% confidence intervals = 0.48-1.38) for individual lunar months and combinations of lunar months. Conclusions: Use of aspirin during pregnancy is not associated with an increased risk of miscarriage.

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