# GEBELİKTE TORCH TARAMASI GEREKLİ Mİ?

Dr. Tuncay NAS

Gazi Üniversitesi Kadın Hastalıkları ve Doğum Anabilim Dalı

# TORCH TEST

- Gebe kadını enfekte edip fetusta doğumsal defekt veya ölümüne neden olan enfeksiyöz hastalıkları içermektedir
  - **T**oxoplasmosis
  - **O**ther (HBs Ag, Sifiliz, HCV, HIV, parvovirüs B19, varicella zoster virüs)
  - **R**ubella
  - **C**MV
  - **H**erpes

# Gebelik-TORCH taraması

- **Tarama testi nedir?**
  - Tıpta tarama testi bir toplumda, kişilerde bulgu ve semptom vermediği için fark edilemeyen bir hastalığı tespit etme stratejisidir.
  - Bu presemptomatik veya fark edilemeyen semptomları olan hastalıkları içerir. Bu nedenle tarama testleri genel olarak sağlıklı kişilerde yapılır.

# Gebelik-TORCH taraması

- **Hedef grup:**
  - Sağlıklı ancak hastalığın yaygın olduğu bölgede yaşayan grup
  - Yüksek riskli grup

# Gebelik-TORCH taraması

- **Taramada hedef**
  - İmmünitesi olmayanları bulmak
    - Aşı (rubella)
    - Ajana maruz kalmayı önlemek (Rubella, Toxo)
  - Gebelik sırasında aktif hastalığı bulup tedavi etmek (Toxo)

# Gebelik-TORCH taraması

- TÜRKİYE CUMHURİYETİ
  - Sadece HBs Ag

**Doğum Öncesi Bakım Yönetim Rehberi Genelgesi 2010 / 13**
TC. SAĞLIK BAKANLIĞI
Ana Çocuk Sağlığı ve Aile Planlaması Genel Müdürlüğü

Sayı : B100AÇS0110000-010.06.01/832-1106 Konu : Doğum Öncesi Bakım Yönetim Rehberi 26 Şubat 2010

..... VALİLİĞİNE

GENELGE 2010/13…

Gebelik süresince, doğum sırasında ve sonrasında sağlık hizmetlerine erişilebilirlik, sağlık hizmetlerinden faydalanma, bu hizmetlerin kalitesi ve hizmet sunan sağlık kurumları arasında etkili sevk sisteminin bulunması anne ve……

# Gebelik-TORCH taraması

ABD

- İlk prenatal vizit (ACOG)
  - HBs Ag
  - Rubella Ig G
  - Sifiliz

**TABLE 8-3.** Typical Components of Routine Prenatal Care

| | | Weeks | | | |
|---|---|---|---|---|---|
| | Text Referral | First Visit | 15–20 | 24–28 | 29–41 |
| **History** | | | | | |
| Complete | Chap. 8, p. 195 | • | | | |
| Updated | | | • | • | • |
| **Physical examination** | | | | | |
| Complete | Chap. 8, p. 197 | • | | | |
| Blood pressure | Chap. 34, p. 706 | • | • | • | • |
| Maternal weight | Chap. 8, p. 200 | • | • | • | • |
| Pelvic/cervical examination | Chap. 8, p. 197 | • | | | |
| Fundal height | Chap. 8, p. 199 | • | • | • | • |
| Fetal heart rate/position | Chap. 8, p. 200 | • | • | • | • |
| **Laboratory tests** | | | | | |
| Hematocrit or hemoglobin | Chap. 51, p. 1079 | • | | • | |
| Blood type and Rh factor | Chap. 29, p. 618 | • | | | |
| Antibody screen | Chap. 29, p. 618 | • | | A | |
| Pap smear screening | Chap. 57, p. 1201 | • | | | |
| Glucose tolerance test | Chap. 52, p. 1105 | | | • | |
| Fetal aneuploidy screening | Chap. 13, p. 292 | B[a] and/or | B | | |
| Neural-tube defect screening | | | B | | |
| Cystic fibrosis screening | Chap. 13, p. 298 | B or | B | | |
| Urine protein assessment | Chap. 5, p. 124 | • | | | |
| Urine culture | Chap. 48, p. 1034 | • | | | |
| Rubella serology | Chap. 58, p. 1214 | • | | | |
| Syphilis serology | Chap. 59, p. 1235 | • | | | C |
| Gonococcal culture | Chap. 59, p. 1239 | D | | | D |
| Chlamydial culture | Chap. 59, p. 1240 | • | | | C |
| Hepatitis B serology | Chap. 59, p. 1067 | • | | | |
| HIV serology | Chap. 59, p. 1246 | B | | | |
| Group B streptococcus culture | Chap. 59, p. 1220 | | | | E |

[a] First-trimester aneuploidy screening may be offered between 11 and 14 weeks.
HIV = human immunodeficiency virus.
**A** Performed at 28 weeks, if indicated.
**B** Test should be offered.
**C** High-risk women should be retested at the beginning of the third trimester.
**D** High-risk women should be screened at the first prenatal visit and again in the third trimester.
**E** Rectovaginal culture should be obtained between 35 and 37 weeks.

# Gebelik-TORCH taraması

- Birleşik Krallık

PRENATAL DIAGNOSIS
*Prenat Diagn* 2005; **25**: 1028–1031.
Published online 17 October 2005 in Wiley InterScience (www.interscience.wiley.com). **DOI:** 10.1002/pd.1242

# TORCH test for fetal medicine indications: only CMV is necessary in the United Kingdom

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[1]*Fetal Medicine Research Unit, University of Bristol, St Michael's Hospital, Bristol, UK*
[2]*Specialist Virology Centre, Health Protection Agency, South West Regional Laboratory, Bristol, UK*

**Objectives** To review the indications and value of TORCH testing (toxoplasma, rubella, cytomegalovirus, herpes) for fetal medicine reasons.

**Methods** Analysis of all maternal and fetal TORCH tests requested from a busy Fetal Medicine Unit during nearly a 10-year period. The main ultrasound findings considered as possibly caused by congenital fetal infections were analysed. Pregnancy outcomes for cases with confirmed maternal or fetal infections were studied.

**Results** Four hundred and sixty-two maternal TORCH tests were performed. Of those, TORCH tests were also performed on fetal samples (amniotic fluid or fetal blood) in 67 cases. Fourteen fetal tests without maternal testing were identified, making the total number of patients tested 476. There were 11 cases of maternal CMV infection (2.3%), 10 cases of fetal CMV infection, and none of the other viruses. Indications for testing included fetal hyperechogenic bowel, hydrops, cerebral ventriculomegaly, echogenic foci, oligohydramnios, polyhydramnios, and IUGR. The most common findings to be actually associated with fetal infections were hyperechogenic bowel, ascites, cardiomegaly, and oligohydramnios. No cases were associated with polyhydramnious, while both IUGR and ventriculomegaly were always associated with other more relevant features.

**Conclusion** In the United Kingdom, complete maternal TORCH testing because of fetal findings on detailed scans is often not necessary. Testing can be limited only to CMV, particularly since other infectious agents, including toxoplasmosis, are uncommon in the United Kingdom. More understanding of the relevance of the different ultrasound features to congenital infections is also important. Copyright © 2005 John Wiley & Sons, Ltd.

KEY WORDS: TORCH; prenatal diagnosis; congenital infections; fetal abnormalities

Journal of Obstetrics and Gynaecology, May 2014, 34:309–312
© 2014 Informa UK, Ltd.
ISSN 0144-3615 print/ISSN 1364-6893 online
DOI: 10.3109/01443615.2013.872609

informa
healthcare

OBSTETRICS

# TORCH screening in pregnancy. Where are we now? An audit of use in a tertiary level centre

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**This audit was performed in the obstetrics and gynaecology department of a tertiary referral hospital, to investigate the use and results of TORCH screening. St Michael's Hospital delivers approximately 6,000 women from South Bristol a year and receives tertiary referrals from the South West of England and South Wales. It was found that 739 patients over a 6-year period from April 2006 to January 2012 underwent testing. The majority's indication (21%) was polyhydramnios. Three patients had evidence of primary CMV infection in pregnancy on serology, two for fetal indications (polyhydramnios and echogenic bowel) and one following a miscarriage. There were no confirmed cases of gestational toxoplasma or rubella. Routine testing for toxoplasma and rubella infection as part of the TORCH screening in cases of fetal or obstetric abnormality should thus be discontinued in our population.**

**Keywords:** CMV, fetal medicine, general obstetrics, rubella, TORCH, toxoplasma

and rubella. In our hospital, parvovirus B19 serology and herpes simplex virus investigations are requested independently.

Perhaps the most important consideration in the use of the TORCH panel is the potential for generating false-positive results due to the low positive predictive value of the tests in low prevalence populations. Such false-positives trigger further tests, and often generate the need for a further blood sample, causing unnecessary parental anxiety, delays in diagnosis and extra financial expense. Serological testing may leave the infection status unresolved; leading to consideration of invasive testing such as amniocentesis, with the known procedure-related risks (RCOG online 2012).

Despite the concerns over routine TORCH screening, this panel of tests has continued to be requested. It is not clear why this is the case.

## Aim

To determine the use of TORCH screening in the Bristol

Table I. Indications for testing and outcomes for patients undergoing TORCH testing at St Michael's Hospital between April 2006 and January 2012.

| Indication for testing | Tests requested (*n*) | CMV IgM present | Toxoplasmosis IgG present | Rubella IgM present | Gestational infection with CMV | Gestational infection with toxoplasmosis | Gestational infection with rubella |
|---|---|---|---|---|---|---|---|
| Increased NT/nuchal oedema | 34 | 4 | 6 | 0 | 0 | 0 | 0 |
| Echogenic foci/bowel | 91 | 4 | 8 | 1 | 2 | 0 | 0 |
| Ventriculomegaly/hydranencephaly/hydrocephalus | 48 | 1 | 1 | 2 | 0 | 0 | 0 |
| Obstetric cholestasis/raised ALT | 48 | 0 | 7 | 0 | 0 | 0 | 0 |
| Polyhydramnios (AFI > 95th centile) | 158 | 7 | 23 | 3 | 0 | 0 | 0 |
| Miscarriage | 42 | 2 | 7 | 0 | 1 | 0 | 0 |
| IUD/NND/poor neonatal outcome | 122 | 3 | 7 | 1 | 0 | 0 | 0 |
| Microcephaly (head circumference < 3rd centile) | 9 | 1 | 2 | 0 | 0 | 0 | 0 |
| Hydrops/pleural effusion/pericardial effusions/ascites | 35 | 1 | 4 | 0 | 0 | 0 | 0 |
| FGR (< 10th centile) | 20 | 4 | 2 | 0 | 1 | 0 | 0 |
| Other | 132 | 3 | 23 | 3 | 0 | 0 | 0 |
| Total | 739 | 30 (4.05%) | 90 (12.2%) | 9 (1.2%) | 4 (0.54%) | 0 | 0 |

# Gebelik-TORCH taraması

Birleşik Krallık

- Düşük oranda TORCH a bağlı konjenital enfeksiyon görülmesi nedeni ile TORCH taraması rutin olmamalıdır

- Obstetrik veya fetal anormalliklerde rutin toxoplasma ve rubella taraması terk edilmelidir.

- Tarama testi olguya göre yapılmalıdır.

No. 285, January 2013

# Toxoplasmosis in Pregnancy: Prevention, Screening, and Treatment

**This clinical practice guideline has been prepared by the Infectious Disease Committee, reviewed by the Family Practice Advisory Committee and the Maternal Fetal Medicine Committee, and approved by the Executive and Council of the Society of Obstetricians and Gynaecologists of Canada.**

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**Objective:** To review the prevention, diagnosis, and management of toxoplasmosis in pregnancy.

**Outcomes:** Outcomes evaluated include the effect of screening on diagnosis of congenital toxoplasmosis and the efficacy of prophylaxis and treatment.

**Evidence:** The Cochrane Library and Medline were searched for articles published in English from 1990 to the present related to toxoplasmosis and pregnancy. Additional articles were identified through references of these articles.

**Values:** The quality of evidence is rated and recommendations made according to guidelines developed by the Canadian Task Force on Preventive Health Care (Table).

**Benefits, harms, and costs:** Guideline implementation should assist the practitioner in developing an approach to screening for and treatment of toxoplasmosis in pregnancy. Patients will benefit from appropriate management of this condition.

**Sponsor:** The Society of Obstetricians and Gynaecologists of Canada.

## Recommendations

1. Routine universal screening should not be performed for pregnant women at low risk. Serologic screening should be offered only to pregnant women considered to be at risk for primary *Toxoplasma gondii* infection. (II-3E)

2. Suspected recent infection in a pregnant woman should be confirmed before intervention by having samples tested at a toxoplasmosis reference laboratory, using tests that are as accurate as possible and correctly interpreted. (II-2B)

3. If acute infection is suspected, repeat testing should be performed within 2 to 3 weeks, and consideration given to starting therapy with spiramycin immediately, without waiting for the repeat test results. (II-2B)

4. Amniocentesis should be offered to identify *Toxoplasma gondii* in the amniotic fluid by polymerase chain reaction (a) if maternal primary infection is diagnosed, (b) if serologic testing cannot

# Gebelik-TORCH taraması

Kanada (CMV, seroprevalans %37-67)

- **Rutin olarak gebe kadınların CMV taranması önerilmemektedir**.
- Serolojik tarama gebe kadında influenza benzeri bulguların varlığı veya USG de CMV enfeksiyonunu düşündürecek bir bulgu varsa yapılmalıdır.
- Seronegatif gebe sağlık çalışanları, kreş veya okul çalışanlara gebelik sırasında serolojik monitorizasyon yapılabilir.
- J Obstet Gyneacol Can 2010 Apr; 32 (4): 348-54. Cytomegalovirus infection in pregnancy.
  Yinon Y ve ark. Fetal Medicine Committee, Society of Obstetricians and Gynaecologists of Canada

# Toxoplasmosis

- Akut enfeksiyonların önemli bir kısmı asemptomatiktir.
- Maternal kanda Ig M 1 yıl kadar pozitif kalır
- Serum Ig G değeri (IU/mL) akut enfeksiyon açısından anlam taşımaz. Titre değeri ve/veya artışı anlamlıdır

# Toxoplasmosis

TÜRKİYE CUMHURİYETİ

- Gebelerde Toxoplasma IgG seropozitivitide
  - %28 (Mumcuoğlu I 2014, Ankara)
  - %28.8 (Gencer M 2014, Samsun) hasta sayısı az
  - %39.9 (Uysal A 2013, İzmir))
  - %48.3 (Tamer GS 2009, Kocaeli)
  - **%52.1, %59.9 (Ocak S 2007, Köksaldı V 2012 Hatay)**

# Toxoplasmosis

- Seroprevalans (Ig G (+))
  - Fransa %47 (kırsal bölge)
  - Avusturya %31
  - Kanada %25
  - ABD %15
  - Norveç %10

# Toxoplasmosis

Rutin tarama yapmayan ülkeler:

- ABD
- Kanada
- Birleşik Krallık
- Norveç

**In many European countries, universal screening for *T gondii* is provided but benefit and costs have not been adequately assessed**.

Routine screening is not recommended in
most countries where incidence of toxoplasmosis is low, including in the United Kingdom and United States.

Dunn D, Wallon M, Peyron F, Petersen E, Peckham C, Gilbert R. Mother-to-child transmission of toxoplasmosis: risk estimates for clinical counselling. *Lancet 1999*

Peyron F, Wallon M, Liou C, Garner P. Treatments for toxoplasmosis in pregnancy. *Cochrane Database Syst Rev 2000;(2):CD001684. DOI: 10.1002/14651858.* CD001684

# Toxoplasmosis

- Rutin tarama???
  - Bölgeye göre
  - Semptom veya bulgu varlığı durumda

# Other (Parvovirüs)

- *Erthyema infectiosum* (beşinci hastalık),B19
- Baş ağrısı, ateş, gribal enfeksiyon bulguları, eritem, döküntü
- %30 vertikal geçiş riski var, İntrauterin ex, nonimmune hidrops
- Fetal viral DNA, kanda IgM
- **Rutin tarama yapılmaz**

# Other (Varicella)

- **Rutin tarama yapılmaz**
- Yüksek risk altında olan sağlık çalışanları gibi risk altında olanlarda bağışıklığa bakılabilir:
  - Bağışık olmayanlar gebelik sırasında virüsten uzak durmalıdırlar.
  - Bağışık olmayanlar virüs ile karşılaştıysa pasif immuninasyon yapılır.
  - Gebelik öncesi veya postpartum aşı

# Other (Hepatit B virüsü (HBV))

Gebelerde seroprevalans

- % 3.7 (Dayan S 2013, Güneydoğu, 246 342 sağlıklı kan bağışlayanlar)
- %2.1 (Araz NC 2011, G.Antep)
- %2.8 (Altınbaş S 2010, Ankara)
- %1.3 (Nas T 1999, Ankara)

# Other (HBV)

- **Gebelikte rutin HBs Ag tarama yapılmalıdır**

# Other (HCV)

## Seroprevalans

- Dayan S 2013, (Güneydoğu)
  - 259 384 sağlıklı kan bağışlayanlar
  - % 0.64
- %0.1  Altınbaş S 2010, (Ankara)

# Other (HCV)

- **Gebelikte rutin tarama yapılmaz**
- Riskli grupta tarama yap
  - Kan transfüzyonu öyküsü
  - KBY
  - i.v. ilaç bağımlıları

# Other (HIV)

- Dayan S 2013, Güneydoğu)
  - 246 342 sağlıklı kan bağışlayanlar
  - % 0.0004

# Other (HIV)

- **Gebelikte rutin tarama yapılmaz**
- Yüksek riskli grup
  - i.v. ilaç bağımlıları
  - Şüpheli veya bilinen HIV (+) partner
  - Multiple seks partnerliler
  - Kan ürünleri kullananlar
  - Başka bir cinsel yolla geçen hastalık tanısı alanlar
    - Opt-out yaklaşım

# Other (Sifiliz)

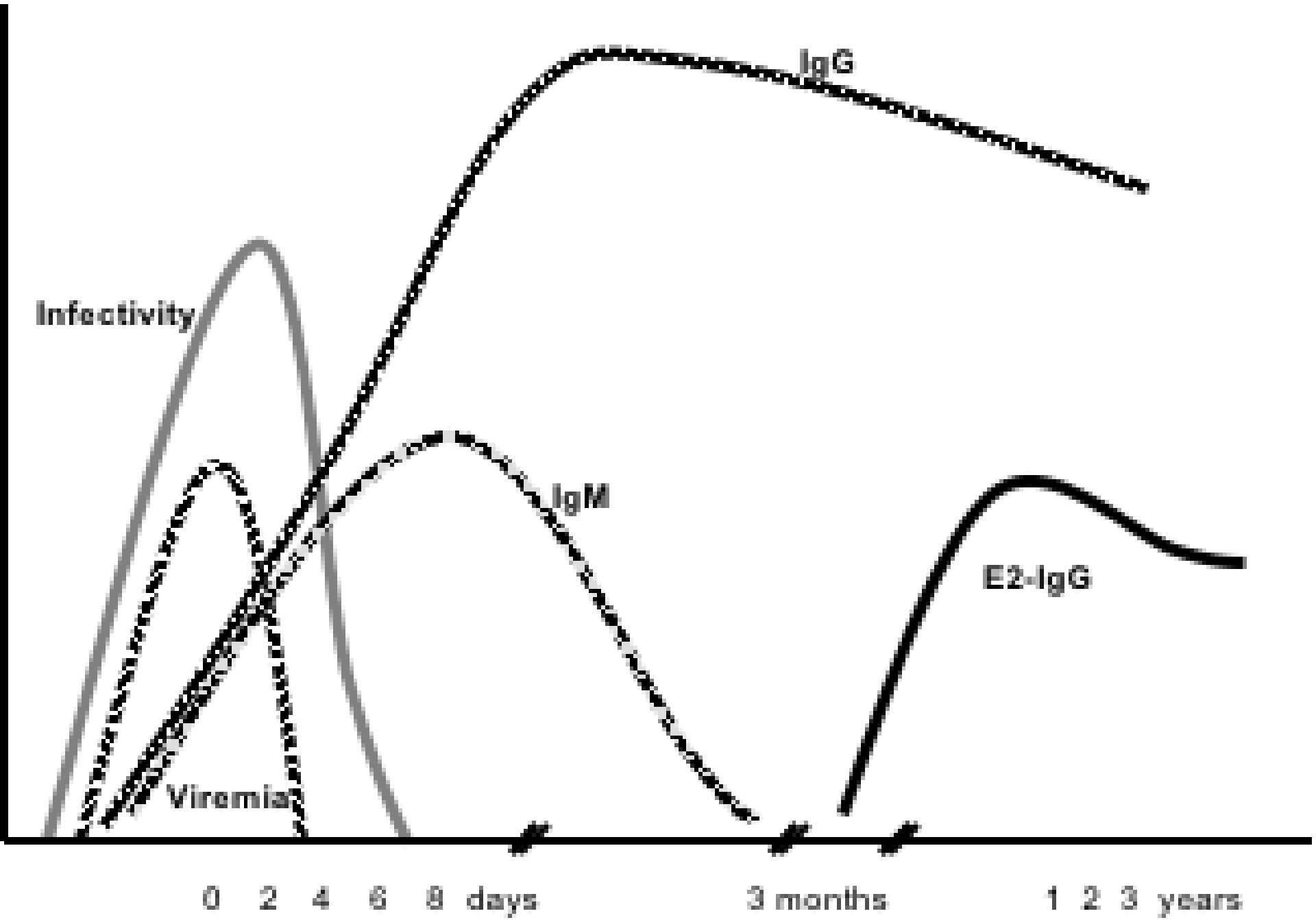
- Nas T 1999
  - 3050 gebede (Gazi Üniversitesi Ankara)
  - %0
- Dayan S 2013, (Güneydoğu)
  - 246 342 sağlıklı kan bağışlayanlar (Rapid Plasma Reagin test)
  - % 0.07
- **Gebelikte rutin tarama yapılmaz**

# Rubella

- Gebelerde Rubella IgG seropozitivite
  - %97.8 (Uysal A 2012, İzmir)
  - %96.1 (Tamer GS 2009, Kocaeli)
  - %94.3 (Uyar Y 2008 Samsun)
  - %96.2 (Aksakal FN 2007, Ankara kırsal bölge)
  - %95 (Ocak S 2007, Hatay)
  - %93.8 (Pehlivan E 2007, Malatya)
  - %82.1 (Güner H 1994, Ankara)

# Rubella

- **Gebelikte, mümkünse gebelik öncesi serolojik tarama yapılmalıdır**


IgG
Infectivity
IgM
E2-IgG
Viremia
0 2 4 6 8 days
3 months
1 2 3 years

# Rubella

- Akut enfeksiyonu düşündürecek semptom veya bulgu yok ise sadece Ig G bakılır
  - Gebelik öncesi bakılabilirse immüne olmayanlara aşı
  - Gebelik sırasında immüne değilse korunma yöntemlerini anlat, doğum sonrası immünizasyonu öner
  - Test gebelik sırasında herhangi bir endikasyon yok ise tekrarlanmaz

# Sitomegalovirus (CMV)

- Gebelerde CMV IgG seropozitividite
  - %98.3 (Uysal A 2012, İzmir)
  - %96.4 (Tamer GS 2009, Kocaeli)
  - %97.3 (Uyar Y 2008 Samsun)
  - %94.9 (Ocak S 2007, Hatay)

# CMV

Ataman S 2007 (Antalya)

- Seroprevalans
  - %82 (1-6 yaş)
  - %92 (7-14 yaş)
  - %97.8 (15-49yaş)

# CMV

- %58.9 ABD
- %59 Norveç
- %37-67 Kanada
- %49 Birleşik Krallık (göçmen olmayan)

# CMV

Hizel S 1999 (Ankara)

- %90.6 (0-14 yaş)
- %99 (15-49 yaş kadınlar)

# CMV

- Küçük yaşlarda immünite kazanılır
- CMV Ig M serumda 1 yıl kadar (+) kalabilir
- Reaktivasyonda veya yeni bir suş ile enfeksiyonda da Ig M (+) olabilir

PRENATAL DIAGNOSIS
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**Conclusion** In the United Kingdom, complete maternal TORCH testing because of fetal findings on detailed scans is often not necessary. Testing can be limited only to CMV, particularly since other infectious agents, including toxoplasmosis, are uncommon in the United Kingdom. More understanding of the relevance of the different ultrasound features to congenital infections is also important. Copyright © 2005 John Wiley & Sons, Ltd.

KEY WORDS: TORCH; prenatal diagnosis; congenital infections; fetal abnormalities

# CMV

## Kanada

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# Herpes

- HSV-1, -2 de genital enfeksiyon yapar
- Seksüel yol ile bulaşır
- Rekürrans sık görülür (HSV-2)

# Herpes

- Neonatal geçiş
  - İntrauterin (%5), Peripartum (%85), Postnatal (%10)
  - Fetus virüsün serviks veya alt genital traktan dökülmesi sonucu enfekte olur
  - Membran rüptürü sonucu asendan yol veya doğum sırasında direkt kontakt ile bulaşır

# Herpes

- **Gebelikte rutin herpes taraması önerilmez**
  - Maliyet
  - Taramanın neonatal herpes insidansına etkisine dair yeterli veri yok
- Termde aktif genital herpes enfeksiyon şüphesi varsa
  - PCR
  - Doğumdan önce antiviral tedavi

# SONUÇ-1

- HBs Ag tarama yap

- Rubella tarama yap
  - Bağışık değil ise
    - Gebelik öncesi ise aşı
    - Gebelik sırasında ise bulaşmasını engelle

# SONUÇ-2

- Toxoplasmosis
  - Rutin tarama???
    - Bölgeye göre?
  - Semptom veya bulgu varlığı durumunda mutlaka serolojik test yap

# Sonuç-3

- CMV, herpes, HCV, HIV, varicella, sifiliz rutin serolojik tarama içinde yer almaz
- Semptom veya bulgu varlığında,
- Yüksek riskli grupta serolojik tarama yap (HCV, HIV)