ERKEN MEMRAN RÜPTÜRÜ YÖNETİM VE TEDAVİ

Doç. Dr. Arda Lembet

Femical Kadın Sağlığı Merkezi

Memorial Ataşehir Hastanesi

Maternal Fetal Tıp Ünitesi

ERKEN MEMBRAN RÜPTÜRÜ

Genel bakış, klinik önemi

Tanı

Değerlendirme

Yönetim

- > 37 hafta
- 34 hafta - 36 6 / 7 hafta
- 32 hafta - 33 6 / 7 hafta
- 23 hafta – 31 6 / 7 hafta
- < 23 hafta

ERKEN MEMBRAN RÜPTÜRÜ

Özel Durumlar

Serklaj

HSV

HIV

Amniopatch

Amniyoinfüzyon

Ev / hastanede izlem

ERKEN MEMBRAN RÜPTÜRÜ

Genel bakış, klinik önemi:

Tüm gebelerin % 10 ‘unda, PTL %3

Latent periyod:

Termde % 95,	28 saat içinde doğum
PPROM %50,	1 hafta içinde doğum
Klinik koryoamniyonit:	% 13-60
Endometrit	% 2-13
AF kültür (+)	% 25-35
Maternal sepsis	% 1
Fetal kayıp	% 1-2
Abruptio placenta	% 4-12

ERKEN MEMBRAN RÜPTÜRÜ

Patofizyoloji:

Kollajen remodeling, selluler apoptozis

Klinik risk faktörleri :

Kısa cx

Servikovajinal fetal fibronectin

EMR (PROM) Klinik Risk Faktörleri

	Odds ratio
Önceki PPROM	3.3-6.3
Önceki PTL	1.9-2.8
Sigara	2.1
Gebelikte kanama	
1.trimester	2.4
2. trimester	4.4
3. trimester	6.4
> Bir trimester	7.4
Akut pulmoner hst	1.8
Bakteriyel Vaginozis	1.5

Erken Membran Rüptürü'nde Tanı

Klinik

Ek testler : **Alkali pH** > 6- 6.5

Ferning

Biyokimyasal belirteçler : (placental alpha microglobulin-1, PAMG-1, IGFBP-1, fFN, AFP, fT4,prolaktin, hCG, IL-6)

USG: AFV ?, AS ?

Erken Membran Rüptürü'nde Değerlendirme - I

Kültürler

Servikal kültürler; Neisseria gonorrhea, Chlamydia, anovajinal kültür; GBS

İdrar tetkiki / kültür

Digital muayene : YAPILMAZ

NST: Ne kadar süre ?, intermittan monitorizasyon

Klinik koryoamniyonit: Ateş > 38 , uterin hassasiyet ile ve / veya maternal ve fetal taşikardi

Doğum endikasyonudur

Erken Membran Rüptürü'nde Değerlendirme - II

Lökositoz: WBC > 16,000

USG / Fetal Biyofizik Profil:

Amniyosentez:

Gram boyama, WBC >30 hücre/microl, glukoz < 16-20, kültür (aerobic-anaerobic, mycoplazma)

Erken Membran Rüptürü'nde Değerlendirme - II

DOI: 10.1111/j.1471-0528.2007.01385.x
www.blackwellpublishing.com/bjog

Systematic review

Use of C-reactive protein as a predictor of chorioamnionitis in preterm prelabour rupture of membranes: a systematic review

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www.blackwellpublishing.com/bjog

Use of C-reactive protein as a predictor of chorioamnionitis in preterm prelabour rupture of membranes: a systematic review

Table 3. DOR (random effects model)

Study	CRP cutoff (mg/l)	DOR	95% CI
Bankowska *et al.*[14]	15	1.48	0.47–4.69
Farb *et al.*[15]	20	8.67	0.79–95.09
Fisk *et al.*[16]	20	4.25	1.15–15.65
Fisk *et al.*[16]	30	8.31	1.64–42.17
Fisk *et al.*[16]	35	13.33	1.57–113.00
Fisk *et al.*[16]	40	25.36	1.40–459.50
Hawrylyshyn *et al.*[17]	12.5	191.67	18.59–1975.80
Kurki *et al.*[18]	12	15.50	3.54–67.84
Nowak *et al.*[19]	12	17.78	5.20–60.80
Nowak *et al.*[19]	20	14.40	4.09–50.74
Sereepapong *et al.*[20]	5	1.75	0.85–3.60
Yoon *et al.*[21]	7	7.12	2.04–24.87

Heterogeneity (χ^2) is 34.03, $P = 0.000$.
Inconsistency (I^2) is 67.7%.

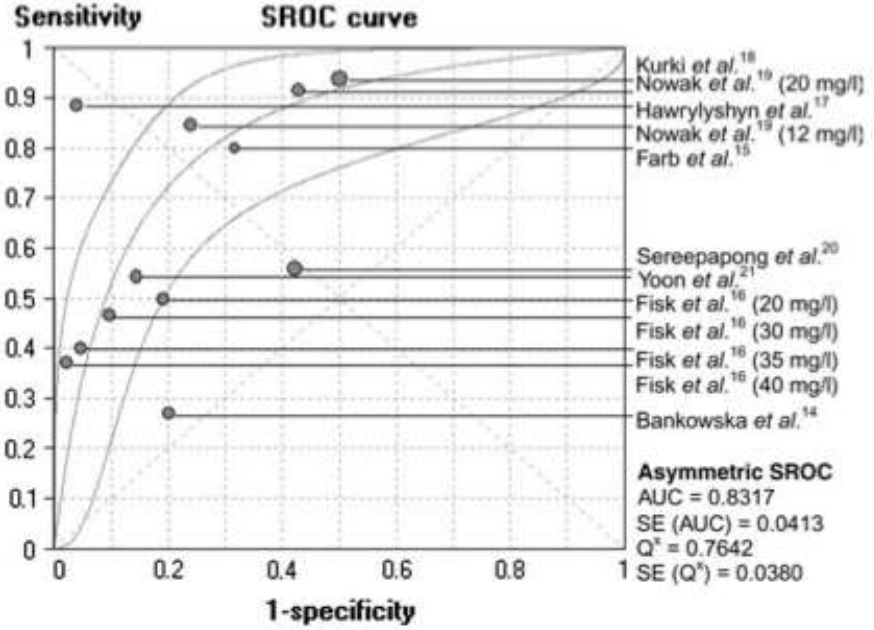


Figure 2. Asymmetric SROC curve. This summarises graphically the results of the studies. The ideal test will have the most convex part of the curve closest to the top left corner, where sensitivity = specificity, represented by the Q* index. SROC, summary receiver operating characteristic curve. AUC, area under the curve; SE, standard error.

Erken Membran Rüptürü'nde Yönetim

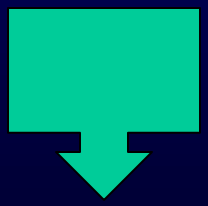
Klinik koryoamniyonit,

Fetal testlerde bozukluk,

Ciddi vajinal kanama,

İlerlemiş eylem,

Doğum komplikasyonları (preeklampsi gibi)



DOĞUM

EMR Yönetim

Term > 37 hafta :

Enfeksiyon :	12 saat	%2
	12-24	%6
	48	%24

Doğum induksiyonu / augmentasyonu:

Prostaglandin:

GBS: > 18 saat profilaksi, kültür son 6 hafta > -

EMR Yönetim

Preterm: 34 hafta - 36 6/7 hafta :

Kortikosteroid ? Latent periyodu uzatmak ?

Enfeksiyon ve umbilikal korda bağlı komplikasyon olma riski prematurite riskinden daha fazla olduğu için ….**DOĞUM**

EMR Yönetim 34-37 HAFTA

Management of late-preterm premature rupture of membranes: the PPROMEXIL-2 trial

David P. van der Ham, MD; Jantien L. van der Heyden, MD; Brent C. Opmeer, PhD; Antonius L.M. Mulder, MD, PhD; Rob M.J. Moonen, MD; J. (Hans) J. van Beek, MD, PhD; Maureen T.M. Franssen, MD, PhD; Kitty W.M. Bloemenkamp, MD, PhD; J. (Marko) M. Sikkema, MD, PhD; Christianne J.M. de Groot, MD, PhD; Martina Porath, MD, PhD; Anneke Kwee, MD, PhD; Mallory D. Woiski, MD; J. (Hans) J. Duvekot, MD, PhD; Bettina M.C. Akerboom, MD; Aren J. van Loon, MD, PhD; Jan W. de Leeuw, MD, PhD; Christine Willekes, MD, PhD; Ben W.J. Mol, MD, PhD; Jan G. Nijhuis, MD, PhD

OBJECTIVE: The evidence for the management of near term prelabor rupture of membranes is poor. From January 2007 until September 2009, we performed the PPROM Expectant Management versus Induction of Labor (PPROMEXIL) trial. In this trial, we showed that in women with preterm prelabor rupture of membranes (PPROM), the incidence of neonatal sepsis was low, and the induction of labor (IoL) did not reduce this risk. Because the PPROMEXIL trial was underpowered and because of a lower-than-expected incidence of neonatal sepsis, we performed a second trial (PPROMEXIL-2), aiming to randomize 200 patients to improve the evidence in near-term PPROM.

STUDY DESIGN: In a nationwide multicenter study, nonlaboring women with PPROM between 34 and 37 weeks' gestational age were eligible for inclusion. Patients were randomized to IoL or expectant management (EM). The primary outcome measure was neonatal sepsis.

RESULTS: From December 2009 until January 2011, we randomized 100 women to IoL and 95 to EM. Neonatal sepsis was seen in 3 neonates (3.0%) in the IoL-group versus 4 neonates (4.1%) in the EM group (relative risk, 0.74; 95% confidence interval, 0.17–3.2). One of the sepsis cases in the IoL group resulted in neonatal death because of asphyxia. There were no significant differences in secondary outcomes.

CONCLUSION: The risk of neonatal sepsis after PPROM near term is low. Induction of labor does not reduce this risk.

Key words: induction of labor, neonatal sepsis, PPROM Expectant Management versus Induction of Labor trial, preterm prelabor rupture of membranes

Cite this article as: van der Ham DP, van der Heyden JL, Opmeer BC, et al. Management of late-preterm premature rupture of membranes: the PPROMEXIL-2 trial. Am J Obstet Gynecol 2012;207:276.e1-10.

Erken Membran Rüptürü'nde Yönetim

Preterm: 32 hafta - 33 6/7 hafta :

Akciğer maturasyonu : Vajinal göllenmeden / AS PG, FLM veya L/S maturse …DOĞUM

İmmatür veya test edilemiyorsa

Cortikosteroid sonrası doğum (24-48 saat sonra veya 34 haftada doğum) / Geniş spektrum antibiyotik

Erken Membran Rüptürü'nde Yönetim

Preterm: 23 hafta - 31 6/7 hafta :

Fetal / maternal monitorizasyon

Antenatal kortikosteroidler

Geniş spektrumlu antibiyotikler:

Amp 2 g iv / q 6 h 48 saat iv + eritro 250 mg q 6

Amoxocilin 250 mg po q 8 5 gün + eritro 333 po q 6

Erken Membran Rüptürü'nde Yönetim

Preterm: 23 hafta - 31 6/7 hafta :

Geniş spektrum ab ve NEC ilişkisi ??

7 günlük ab tedavisi sonrası GBS taşyıcılarının izlenmesi

Tedavi stop, intrapartum tedavi

7 gün sonrası dar spektrum ab ile doğuma kadar

Anovajinal külür ile izlem ; + olana tedavi

Erken Membran Rüptürü'nde Yönetim

Preterm: 23 hafta - 31 6/7 hafta :

Günlük NST / FBPP

Beyaz küre sayımı ?? Baseline

Servikovajinal patojen ve TİT tedavisi

USG takibi, oligohidroamnios ??

Tokoliz, amniyoinfuzyon

Tromboemboli korunma

Erken Membran Rüptürü'nde Yönetim

Preterm: < 23 hafta :

Gestasyonel yaş kesin tayini

Yüksek komplikasyon oranı:

Koryoamniyonit	% 39
Endometrit	% 14
Dekolman	% 3
Plasenta ret, PPH, D&C	% 12
IUFD(fetal kayıp)	% 15

Erken Membran Rüptürü'nde Yönetim

Preterm: < 23 hafta :

Oligohidroamnioz < 20 hafta:

Kötü prognostik belirteç

Pulmoner hipoplazi (TC / AC)

İskelet deformiteleri

Membranların tekrar iyileşmesi

Yeni tedavi modaliteleri: Gelfoam,fibrin-trombosit-cryo-

Erken Membran Rüptürü'nde Yönetim – Özel Durumlar

Serklaj: Alınmalı mıdır ? Ne zaman alınmalıdır ?

HSV

HIV

Membranların tekrar kapanması

Amniyoinfüzyon

Rekurrent EMR önlenmesi: Progesteron , C vitamini ?

Surgical treatment of spontaneous rupture of membranes: The amniograft—First experience

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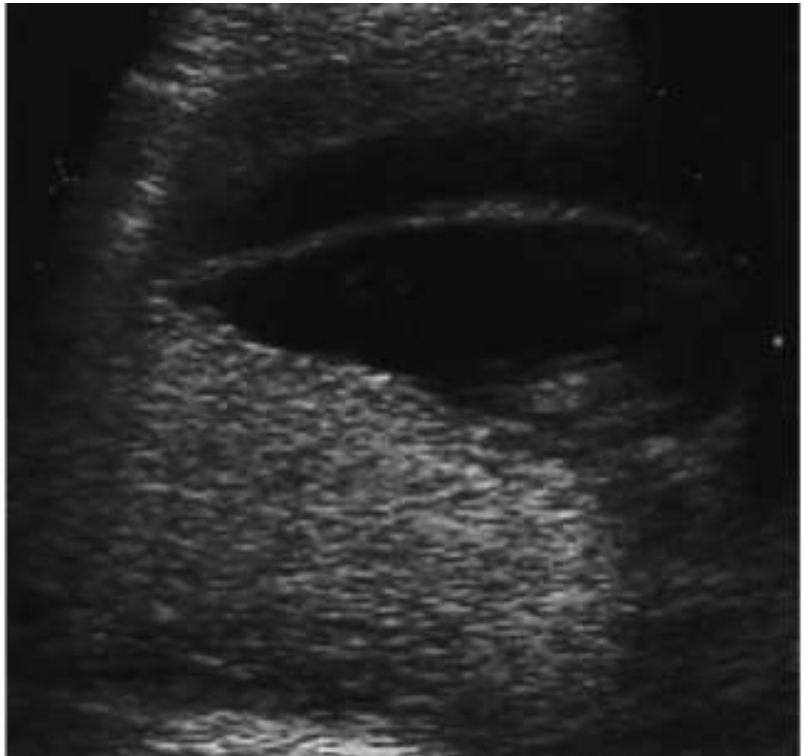
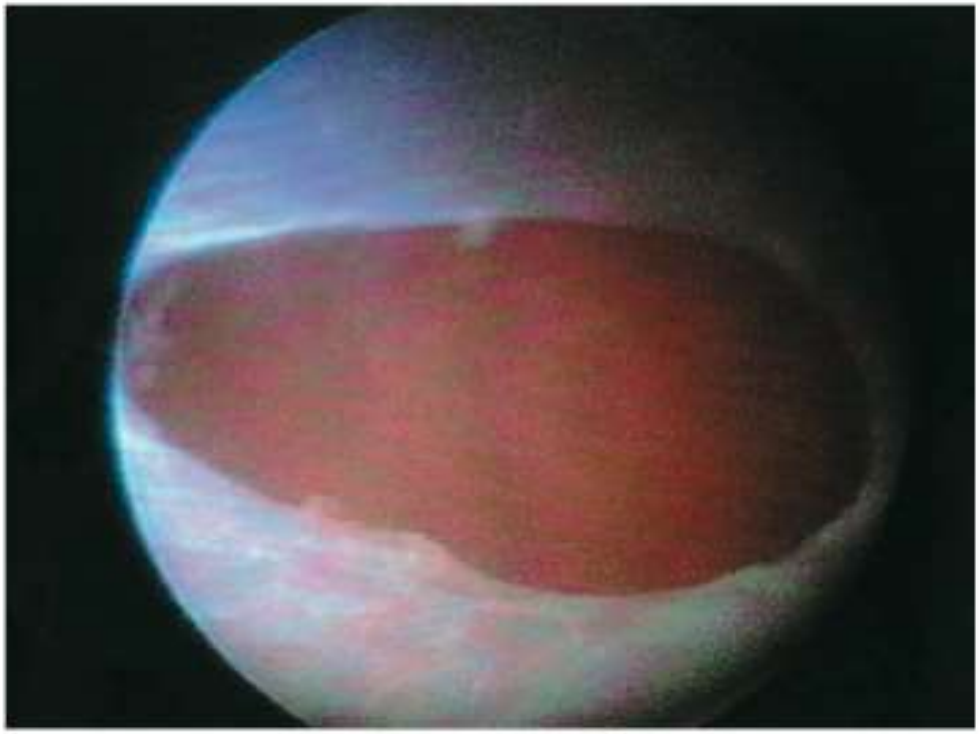
Tampa, Fla

A 28-year-old woman underwent surgical repair of spontaneous ruptured membranes at 17 weeks' gestation. A collagen graft was placed endoscopically over the membrane defect located over the internal os. Membranes reruptured 14 days later, but the patient did not deliver until 30.5 weeks. The infant did well. (Am J Obstet Gynecol 2002;186:155-7.)





Amniopatch procedure after previable iatrogenic rupture of the membranes: a two-center review

Jute Richter[1], Amanda Henry[2,3], Greg Ryan[2], Philip DeKoninck[1], Liesbeth Lewi[1] and Jan Deprest[1]*

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ABSTRACT

Objective This study aimed to analyze success rates and pregnancy outcomes of amniopatch procedures for previable iatrogenic preterm prelabour rupture of the membranes (PPROM) with associated oligohydramnios.

Methods Retrospective analysis of amniopatch procedures performed at the University Hospitals Leuven, Belgium, and the Mount Sinai Hospital Toronto, Canada. Cases were analyzed overall and in two sub-groups: PPROM after a needle-based procedure (NP group, $n=13$) or after fetoscopic intervention (FI group, $n=11$). Complete technical success was defined as cessation of leakage and normalization of amniotic fluid volume, partial success as cessation of leakage, or re-establishment of volume. Further outcomes were pregnancy duration and outcome, fetal/neonatal morbidity and mortality, and maternal morbidity.

Results Gestational age at amniopatch was comparable in both groups (NP: 20.1, FI: 21.0 weeks). Amniopatch was completely and partially successful in 29% (NP: 31%; FI: 27%) and 29% (NP: 15%; FI: 45%), respectively. Mean gestational age at delivery was 27.5 weeks (NP: 25.5; FI: 29.4 weeks). Overall neonatal survival was 17/31 (55%) (NP: 4/13 (31%), FI: 13/18 (72%); $p=.02$). Chorioamnionitis occurred in three cases, two associated with maternal sepsis. Severe neonatal morbidity occurred in two survivors.

Conclusion Amniopatch for iPPROM was successful in 58%, with an overall live birth rate of 68% and survival to discharge of 55%. © 2013 John Wiley & Sons, Ltd.

OBSTETRICS WORLD PREMATURITY DAY

Transabdominal amnioinfusion for preterm premature rupture of membranes: a systematic review and metaanalysis of randomized and observational studies

Shay Porat, MD; Hagai Amsalem, MD, MSc; Prakesh S. Shah, MD, MSc; Kellie E. Murphy, MD, MSc

OBJECTIVE: The purpose of this study was to review systematically the efficacy of transabdominal amnioinfusion (TA) in early preterm premature rupture of membranes (PPROM).

STUDY DESIGN: We conducted a literature search of EMBASE, MEDLINE, and ClinicalTrials.gov databases and identified studies in which TA was used in cases of proven PPROM and oligohydramnios. Risk of bias was assessed for observational studies and randomized controlled trials. Primary outcomes were latency period and perinatal mortality rates.

RESULTS: Four observational studies (n = 147) and 3 randomized controlled trials (n = 165) were eligible. Pooled latency period was 14.4 (range, 8.2–20.6) and 11.41 (range −3.4 to 26.2) days longer in the TA group in the observational and the randomized controlled trials, respectively. Perinatal mortality rates were reduced among the treatment groups in both the observational studies (odds ratio, 0.12; 95% confidence interval, 0.02–0.61) and the randomized controlled trials (odds ratio, 0.33; 95% confidence interval, 0.10–1.12).

CONCLUSION: Serial TA for early PPROM may improve early PPROM-associated morbidity and mortality rates. Additional adequately powered randomized control trials are needed.

Key words: amnioinfusion, latency period, oligohydramnios, PPROM, pulmonary hypoplasia

Cite this article as: Porat S, Amsalem H, Shah PS, et al. Transabdominal amnioinfusion for premature preterm rupture of membranes: a systematic review and metaanalysis of randomized and observational studies. Am J Obstet Gynecol 2012;207:393.e1-11.

FIGURE 2

Effect of serial TA on neonatal outcomes

A

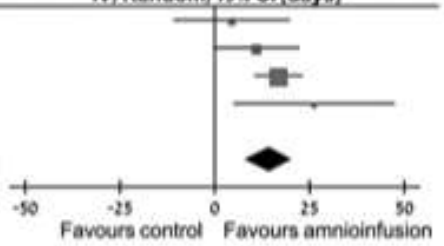
Latency period

Study or Subgroup	Experimental Mean (days)	Experimental SD (days)	Experimental Total	Control Mean (days)	Control SD (days)	Control Total	Weight	Mean Difference IV, Random, 95% CI (days)
Vergany et al, 1997	38	22.75	18	33.5	23	16	14.2%	4.50 [-10.91, 19.91]
Gramellini et al, 2003	34.75	23.25	24	23.75	17.75	29	24.0%	11.00 [-0.33, 22.33]
Garzetti et al, 1997	28.7	11.9	18	11.9	7	18	53.9%	16.80 [10.42, 23.18]
Ogunyemi , 2002 (1)	42.4	33.6	12	16.2	16.97	12	7.9%	26.20 [4.90, 47.50]
Total (95% CI)			**72**			**75**	**100.0%**	**14.40 [8.24, 20.56]**

Heterogeneity: Tau² = 7.75; Chi² = 3.63, df = 3 (P = 0.30); I² = 17%

Test for overall effect: Z = 4.58 (P < 0.00001)

(1) SD was derived from published SE and n



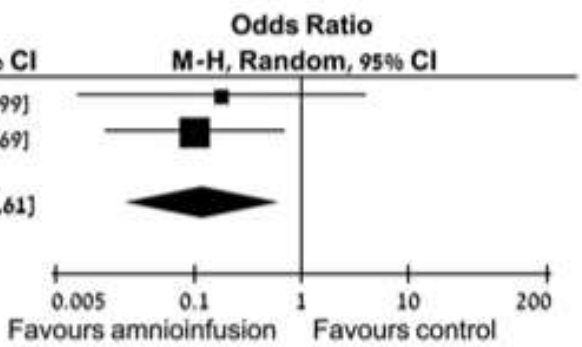
B

Perinatal mortality

Study or Subgroup	Experimental Events	Experimental Total	Control Events	Control Total	Weight	Odds Ratio M-H, Random, 95% CI
Garzetti et al, 1997	0	18	2	18	27.9%	0.18 [0.01, 3.99]
Ogunyemi , 2002	4	12	10	12	72.1%	0.10 [0.01, 0.69]
Total (95% CI)		**30**		**30**	**100.0%**	**0.12 [0.02, 0.61]**
Total events	4		12			

Heterogeneity: Tau² = 0.00; Chi² = 0.10, df = 1 (P = 0.76); I² = 0%

Test for overall effect: Z = 2.55 (P = 0.01)



C

Pulmonary hypoplasia

Study or Subgroup	Experimental Events	Experimental Total	Control Events	Control Total	Weight	Odds Ratio M-H, Random, 95% CI
Ogunyemi , 2002	1	11	2	7	33.2%	0.25 [0.02, 3.47]
Vergany et al, 1997	6	13	12	14	66.8%	0.14 [0.02, 0.91]
Total (95% CI)		**24**		**21**	**100.0%**	**0.17 [0.04, 0.78]**
Total events	7		14			

Heterogeneity: Tau² = 0.00; Chi² = 0.12, df = 1 (P = 0.73); I² = 0%

Test for overall effect: Z = 2.28 (P = 0.02)

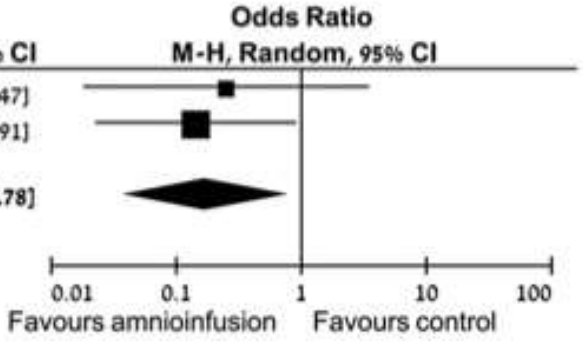


FIGURE 3

Effect of serial TA on neonatal outcomes for randomized controlled trials

A

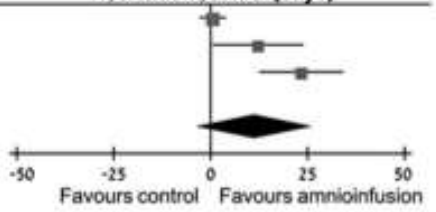
Latency period

Study or Subgroup	Experimental Mean [days]	Experimental SD [days]	Experimental Total	Control Mean [days]	Control SD [days]	Control Total	Weight	Mean Difference IV, Random, 95% CI [days]
Singla et al, 2010	7.27	7.53	30	6.7	5.93	30	37.5%	0.57 [-2.86, 4.00]
Tranquilli et al, 2005 (1)	21	17.45	17	8.76	17.45	17	30.8%	12.24 [0.51, 23.97]
De Santis et al, 2003	41.6	29.7	37	18.2	15.1	34	31.7%	23.40 [12.57, 34.23]
Total (95% CI)			**84**			**81**	**100.0%**	**11.41 [-3.36, 26.18]**

Heterogeneity: Tau² = 148.48; Chi² = 17.89, df = 2 (P = 0.0001); I² = 89%

Test for overall effect: Z = 1.51 (P = 0.13)

(1) Mean and SD are estimates, calculated according to Hozo et al. (38)



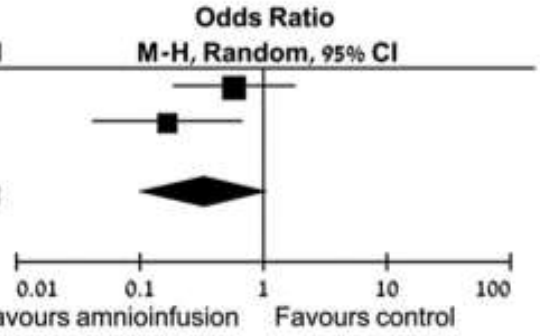
B

Perinatal mortality

Study or Subgroup	Experimental Events	Experimental Total	Control Events	Control Total	Weight	Odds Ratio M-H, Random, 95% CI
De Santis et al, 2003	27	37	28	34	55.5%	0.58 [0.18, 1.81]
Singla et al, 2010	3	30	12	30	44.5%	0.17 [0.04, 0.67]
Total (95% CI)		**67**		**64**	**100.0%**	**0.33 [0.10, 1.12]**
Total events	30		40			

Heterogeneity: Tau² = 0.35; Chi² = 1.83, df = 1 (P = 0.18); I² = 45%

Test for overall effect: Z = 1.78 (P = 0.08)



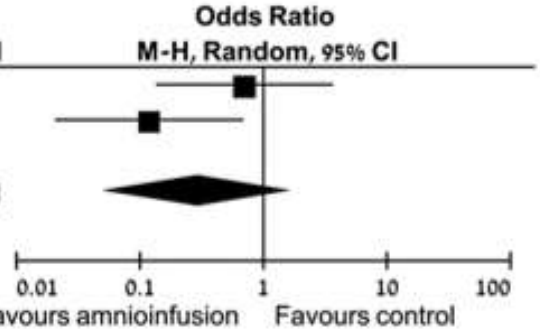
C

Pulmonary hypoplasia

Study or Subgroup	Experimental Events	Experimental Total	Control Events	Control Total	Weight	Odds Ratio M-H, Random, 95% CI
De Santis et al, 2003	5	24	3	11	51.4%	0.70 [0.13, 3.66]
Tranquilli et al, 2005	2	17	9	17	48.6%	0.12 [0.02, 0.69]
Total (95% CI)		**41**		**28**	**100.0%**	**0.30 [0.05, 1.70]**
Total events	7		12			

Heterogeneity: Tau² = 0.83; Chi² = 2.10, df = 1 (P = 0.15); I² = 52%

Test for overall effect: Z = 1.37 (P = 0.17)



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Original Article

Hospital versus outpatient care for preterm pre-labour rupture of membranes

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Table 2 Perinatal outcomes following preterm pre-labour rupture of membranes (pPROM): bivariate analysis hospital care and outpatient care

Characteristics	Hospital care $n = 91$ Mean (SD)	Outpatient care $n = 53$ Mean (SD)	P
Gestation at birth (weeks)	30.4 (3.7)	32.7 (3.8)	<0.001*
Number of days from ruptured membranes to birth†	12.4 (4.2–14.6)	32.6 (14.3–43.2)	<0.001*
Birthweight (grams)	1602 (688)	2121 (776)	<0.001*
Number days baby in NICU ($n = 105$)	32.8 (25.5)	20.2 (21.2)	0.014*
	N (%)	*N* (%)	
Small for gestational age‡ ($n = 95$)	11 (20.4)	10 (24.4)	0.640
Intrauterine fetal death	8 (8.8)	2 (3.8)	0.215
Baby discharged home on oxygen	3 (4.2)	1 (2.9)	0.610
Respiratory distress syndrome	51 (56.0)	21 (39.6)	0.057
Chronic neonatal lung disease	5 (5.49)	2 (3.77)	0.489
Neonatal infection	5 (5.5)	6 (11.3)	0.213
Periventricular haemorrhage	9 (9.9)	2 (3.8)	0.157
Periventricular leukomalacia	2 (2.2)	1 (1.9)	0.695
Necrotizing enterocolitis	0 (0)	0 (0)	n/a
Neonatal death	1 (1.1)	3 (5.7)	0.141

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Original Article

Hospital versus outpatient care for preterm pre-labour rupture of membranes

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Table 3 Maternal outcomes following preterm pre-labour rupture of membranes (pPROM): bivariate analysis hospital care and outpatient care

Characteristics	Hospital care $n = 91$ *N* (%)	Outpatient care $n = 53$ *N* (%)	*P*
Induction of labour	12 (13.2)	13 (24.5)	0.009*
Normal vaginal birth	50 (55.0)	19 (35.9)	0.085
Instrumental birth	2 (2.2)	3 (5.7)	
Elective caesarean section	6 (6.6)	8 (15.1)	
Emergency caesarean section	33 (36.3)	23 (43.4)	
Caesarean section performed under GA	8 (8.8)	9 (17.0)	0.116
Maternal length of stay after birth (days)†	3.7 (2.5)	3.9 (2.3)	0.705
Antepartum haemorrhage (after 20 weeks)	7 (7.7)	9 (17.0)	0.077
Peripartum blood transfusion	3 (3.3)	5 (9.4)	0.122
Caesarean section wound complication‡	1 (1.1)	0 (0)	0.632
Cord prolapse	1 (1.1)	1 (1.9)	0.602
Clinical chorioamnionitis and/or endometritis	9 (9.9)	2 (3.77)	0.183

*$P < 0.05$.

†Mean (standard deviation).

‡Includes wound infection, wound haematoma, wound dehiscence and wound seroma.