LAMPIRAN

PRODI PENDIDIDKAN PROFESI BIDAN

JURUSAN KEBIDANAN POLTEKKES KEMENKES YOGYAKARTA

Jalan Mangkuyudan MJ III/304 Yogyakarta 55143 Telp (0274) 37431

ASUHAN KEBIDANAN PADA IBU HAMIL
NY. L USIA 31 TAHUN G2P1A0 UK 39 MINGGU DENGAN
KEHAMILAN NORMAL DENGAN ANEMIA DI PUSKESMAS TURI

Tanggal pengkajian : 15 Januari 2023

Tempat : Rumah Ibu L

No. RM : 05/22

S

1. Identitas

Biodata		Istri	Suami
Nama	:	Ny. L	Tn. R
Umur	:	31 tahun	32 tahun
Pendidikan	:	SMA	SMA
Pekerjaan	:	Pedagang	Karyawan Swasta
Agama	:	Islam	Islam
Suku/ Bangsa	:	Jawa/ Indonesia	Jawa/ Indonesia
Alamat	:	Babadan, Girikerto, Turi	Babadan, Girikerto Turi

2. Alasan Kunjungan
   Ibu mengatakan ingin memeriksakan kehamilannya.
3. Keluhan Utama
   Ibu mengatakan kadang-kadang perutnya kencang-kencang
4. Riwayat Menstruasi
   Menarche : 12 tahun Siklus : 28 hari
   Lama : 5-6 hari Teratur : Teratur
   Sifat Darah : Cair (khas menstruasi) Keluhan : Tidak ada
5. Riwayat Perkawinan
   Status pernikahan : Menikah Menikah ke : Pertama
   Lama : 7 tahun Usia menikah pertama kali : 24 tahun
6. Riwayat Obstetrik : $G_2P_1A_0$

Hamil	Persalinan							Nifas	
Ke	Tahun	Umur kehamilan	Jenis Persalinan	Penolong	Komplikasi	JK	BB Lahir	Laktasi	Komplikasi
1	2016	Aterm	Spontan	Bidan	Tidak Ada	Laki-laki	3400	2 tahun	Tidak Ada
2	Hamil ini								

7. Riwayat kontrasepsi yang digunakan

   Ibu mengatakan menggunakan KB suntik 3 bulanan.

8. Riwayat Kehamilan sekarang

   a. HPHT : 16-04-2021 HPL : 23-01-2023

   b. ANC pertama usia kehamilan : 8 minggu

   c. Kunjungan ANC

   - Trimester I : Frekuensi : 2x

     Tempat : Puskesmas

     Oleh : Bidan

     Keluhan : Mual, pusing

     Terapi : B6, paracetamol

   - Trimester II : Frekuensi : 3x

     Tempat : Puskesmas dan PMB Widawati Rahayu

     Oleh : Bidan

     Keluhan : Tidak ada

     Terapi : Prenatal

   - Trimester III : Frekuensi : 6x

     Tempat : PMB Widawati Rahayu dan Puskesmas

     Oleh : Bidan

     Keluhan : Tidak ada

     Terapi : Prenatal

   d. Imunisasi TT

      TT 4

   e. Pergerakan Janin dalam 12 jam (dalam sehari)

Lebih dari 10 kali

9. Riwayat Kesehatan

a. Penyakit sistemik yang pernah/sedang diderita

Ibu mengatakan tidak sedang/pernah menderita penyakit jantung, hipertensi, asma, DM, ginjal, TBC, maupun HIV/AIDS

b. Penyakit sistemik yang pernah/sedang diderita keluarga

Ibu mengatakan keluarga tidak sedang/pernah menderita penyakit jantung, hipertensi, asma, DM, ginjal, TBC, maupun HIV/AIDS

c. Riwayat psikologi keluarga

Ibu mengatakan ibu dan keluarga tidak memiliki riwayat gangguan jiwa.

d. Riwayat keturunan kembar

Ibu mengatakan tidak ada riwayat kembar dalam keluarga suami maupun ibu.

e. Riwayat Operasi

Ibu mengatakan tidak pernah operasi apapun

f. Riwayat Alergi Obat

Ibu mengatakan tidak mempunyai alergi obat apapun

10. Pola Pemenuhan Kebutuhan sehari-hari

Sebelum Hamil	Setelah Hamil
a. Pola Nutrisi	
• Makan	
Frekuensi : 3 x/hari	4-5 x/hari
Porsi : 1 piring	1 piring
Jenis : Nasi, sayur, lauk	Nasi, sayur, lauk
Pantangan : Tidak ada	Tidak ada
Keluhan : Tidak ada	Tidak ada
• Minum	
Frekuensi : 5 - 7 x/hari	8 - 9 x/hari
Porsi : 1 gelas	1 gelas
Jenis : Air putih, teh	Air putih, susu
Pantangan : Tidak ada	Tidak ada

Keluhan : Tidak ada Tidak ada

b. Pola Eliminasi

- BAB

Frekuensi : 1 x/hari 1 x/hari

Konsistensi : Lunak Lunak

Warna : Kuning Kuning

Keluhan : Tidak ada Tidak ada

- BAK

Frekuensi : 6 -7 x/hari 7 - 8 x/hari

Konsistensi : Cair Cair

Warna : Kuning jernih Kuning jernih

Keluhan : Tidak ada Tidak ada

c. Pola Istirahat

- Tidur siang

Lama : 1 jam/hari 1 jam/hari

Keluhan : Tidak ada Tidak ada

- Tidur malam

Lama : 6-7 jam/hari 7-8 jam/hari

Keluhan : Tidak ada Tidak ada

d. *Personal hygiene*

Mandi : 2 x/hari 2 x/hari

Ganti pakaian : 2 x/hari 2 x/hari

Gosok gigi : 2 x/hari 2 x/hari

Keramas : 3 x/minggu 3 x/minggu

e. Pola seksualitas

Frekuensi : 3 x/minggu 1 x/minggu

Keluhan : Tidak ada Tidak ada

f. Pola aktifitas (terkait kegiatan fisik, olah raga)

Ibu mengatakan selain bekerja sebagai pedagang juga melakukan pekerjaan rumah tangga

11. Kebiasaan yang mengganggu kesehatan (merokok, minum jamu, minuman beralkohol)

    Ibu mengatakan tidak mempunyai kebiasaan yang dapat mengganggu kesehatan seperti merokok, minum jamu, minuman beralkohol.

12. Psikososiospiritual (penerimaan ibu/suami/keluarga terhadap kehamilan, dukungan sosial, perencanaan persalinan, pemberian ASI, perawatan bayi, kegiatan ibadah, kegiatan sosial, dan persiapan keuangan ibu dan keluarga)

    Ibu, suami, dan keluarga sangat senang dengan kehamilannya.

    Ibu berhubungan baik dengan lingkungan sekitar.

    Ibu beragama Islam dan rajin beribadah

    Ibu berencana melahirkan di PMB Widawati Rahayu

    Ibu berencana merawat bayinya sendiri dan akan memberikan ASI eksklusif.

    Ibu dan suami sudah mempersiapkan dana untuk persiapan persalinan.

13. Pengetahuan ibu (tentang kehamilan, persalinan, dan laktasi)

    Ibu mengatakan masih sedikit mengetahui tentang kehamilan, persalinan, dan laktasi karena ini merupakan kehamilan pertama.

14. Lingkungan yang berpengaruh (sekitar rumah dan hewan peliharaan)

    Ibu mengatakan lingkungan di sekitar rumah bersih,dan ibu tidak mempunyai hewan peliharaan apapun.

O

1. Pemeriksaan Umum

Keadaan Umum	: Baik		
Kesadaran	: Composmentis		
Status Emosional	: Stabil		
Vital Sign			
Tekanan Darah	: 110/70 mmHg	Nadi	:80x/menit
Pernafasan	: 20 x/menit	Suhu	: 36,3 °C
BB sblm hamil	: 62 kg	Tinggi badan	: 160 cm
BB sekarang	: 69 kg	Lila	: 27,5 cm

IMT : 24,21 kg/m^2

2. Pemeriksaan Fisik

1) Kepala

a. Bentuk : tidak mesocephal, tidak ada massa/benjolan

b. Warna kulit : Putih bersih

2) Rambut

a. Bentuk : Lurus

b. Bau rambut : Tidak berbau

c. Warna rambut : Hitam

3) Muka

a. Bentuk : Oval

b. Oedem : Tidak ada

c. Cloasma gravidarum: Tidak ada

4) Mata

a. Kesimetrisan : Simetris

b. Konjungtiva : anemis

c. Sklera : tidak ikterik,bersih,tidak ada sekret

5) Hidung

a. Polip : Tidak ada

b. Infeksi : Tidak ada

c. Serumen : Tidak ada

6) Mulut

a. Keadaan bibir : Lembab

b. Keadaan gigi : Tidak ada caries

c. Keadaan gusi : Tidak ada perdarahan, tidak ada pembengkakan

d. Keadaan lidah : Bersih

7) Telinga

Tidak ada tanda-tanda infeksi,tidak ada penyumbatan serumen,pendengaran aktif

8) Leher

a. Tidak ada pembesaran kelenjar tiroid

b. Tidak ada pembesaran kelenjar limfe

c. Tidak ada pembesaran kelenjar parotis

d. Tidak ada pembesaran vena jugularis

9) Dada

a. Mengi : Tidak ada

b. Retraksi dinding dada : Tidak ada

10) Payudara

a. Simetris : Ya

b. Hiperpigmentasi : Ya

c. Massa : Tidak ada

d. Pembesaran : Ada

e. Puting susu : Menonjol

11) Abdomen

a. Bekas luka : Tidak ada

b. Linea nigra : Tidak ada

c. Striae gravidarum : Ada

d. Palpasi Leopold

- Leopold I

  TFU pertengahan pusat-px, pada fundus teraba satu bagian bulat, lunak, tidak melenting (bokong)

- Leopold II

  Bagian kiri ibu teraba memanjang seperti papan, ada tahanan dan keras (punggung)

  Bagian kanan ibu teraba kecil-kecil, banyak, (ekstremitas)

- Leopold III

  Bagian terendah janin teraba satu bagian bulat, keras, melenting (kepala), kepala sudah masuk PAP

- Leopold IV

  Divergen, 4/5

e. TFU menurut Mc. Donald : 28 cm, TBJ : 2635 gram

f. Auskultasi DJJ : 142 x/menit, irama teratur kuat

12) Ekstremitas

- Ekstremitas atas

  Simetris, tidak ada polidaktili, gerakan aktif, tidak sianosis, tidak odema
- Ekstremitas bawah

  Simetris, tidak ada polidaktili, gerakan aktif, tidak sianosis, tidak odema

13) Genetalia

Tidak ada odema,tidak ada pembesaran kelenjar bartolini

14) Anus : Tidak ada haemorroid

15) Pemeriksaan panggul (bila perlu) : Tidak dilakukan

3. Pemeriksaan Penunjang

Laboraturium: 10,5 gr %

A

Seorang ibu Ny. L usia 31 tahun $G_2P_1A_0$ uk 39 minggu janin tunggal kehamilan dengan anemia ringan.

P

1. Beri tahu ibu kondisi ibu dan janinnya berdasarkan hasil pemeriksaan.
   (Ibu mengetahui kondisi saat ini mengalami anemia ringan)
2. Memberikan KIE tentang
   a. Dampak Hb kurang
   b. Pentingnya tablet Fe pada kehamilan
   c. Kebutuhan nutrisi ibu hamil
   (Ibu sudah paham dan mengerti tentang KIE dan dapat mengulangi lagi)
3. Memberi penjelasan mengenai kencang-kencang yang sering dialami ibu
   (Ibu mengerti tentang penyebab terjadinya kenceng-kenceng)
4. Beri tahu ibu tentang tanda-tanda persalinan.
   (Ibu mengertahui tanda-tanda persalinan)
5. Anjurkan pada ibu untuk tetap mengkonsumsi tablet tambah darah dan kalsium
   (Ibu bersedia meminum tablet tambah darah dan kalsium)

6. Anjurkan ibu untuk kunjungan ulang 1 minggu lagi atau jika ada keluhan.
   (ibu bersedia untuk melakukan kunjungnan ulang)
7. Dokumentasikan hasil tindakan yang dilakukan
   (Telah dilakukan dokumntasi)

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ASUHAN KEBIDANAN PADA IBU BERSALIN
NY. L USIA 31 TAHUN G2P1A0 UK 39^{+5} MINGGU
INPARTU KALA I FASE AKTIF JANIN TUNGGAL HIDUP PRESENTASI KEPALA

Tanggal pengkajian : 21 Januari 2023/ Pukul 15.00 WIB
Tempat : PMB Widawati Rahayu
No. RM : 05/22

S : Ny. L datang ke PMB diantar suami dengan keluhan perut kencang-kencang teratur sejak pukul 06.00 WIB.

O : KU : Baik Kesadaran : CM
TD : 110/80mmHg RR : 20 x/menit
HR : 80 x/menit T : 36.5

Palpasi abdomen: TFU= pertengahan pusat-px, teraba bokong di fundus uteri, puki, presentasi kepala, divergen 3/5 (Mc. Donald = 28 cm)

DJJ : 148x/ menit teratur
His : 3x10’ lamanya 35 detik, kekuatan sedang
VT (pukul 15.00 WIB) : v/v tenang, d/v licin, portio lunak, pembukaan 5 cm, selaput ketuban (+), presentasi kepala, H III, STLD (+), AK (+)
TBJ : 2635 gram

A: Ny. L usia 31 tahun $G_2P_1A_0$ uk 39^{+5} minggu inpartu kala I fase aktif, janin tunggal, hidup, presentasi kepala

P :

1. Memberi tahu ibu dan suami hasil pemeriksaan, keadaan ibu dan janin baik, jalan lahir pembukaan 5 cm. Ibu dianjurkan untuk rawat inap dan akan

diobservasi kemajuan persalinannya karena ibu sudah masuk dalam persalianan kala 1 fase aktif.

- Ibu dan suami mengerti tentang kondisi saat ini.

2. Meminta kepada keluarga dan suami untuk memberikan dukungan kepada ibu, agar dapat menjalani proses persalinan dengan baik

- Suami selalu berada di samping ibu, membantu mengurangi rasa nyeri dengan memijat punggung ibu, memberikan makan dan minum.

3. Memberi tahu ibu untuk tetap makan dan minum, pada saat tidak kontraksi agar ibu memiliki energi untuk menjalani proses persalinan

- Ibu mengerti dan mau makan dan minum saat tidak his

4. Memberi tahu ibu untuk jalan-jalan agar kepala bayi cepat turun dan pembukaan bertambah.

- Ibu bersedia untuk jalan jalan.

5. Mengajarkan ibu cara mengatasi nyeri saat his datang, yaitu dengan menarik nafas panjang dari hidung kemudian dikeluarkan perlahan lewat mulut saat his mulai datang.

- Ibu bersedia untuk menarik nafas panjang

6. Mempersiapkan alat-alat untuk persalinan yaitu:
   a. Partus set, antara lain 2 klem tali pusat, gunting tali pusat, gunting episiotomi, ½ kohler, kateter nelaton, benang tali pusat, 2 pasang hanscoon dan kassa steril
   b. Heating set, antara lain nald pouder, benang chromic, nald catgut, 1 pasang handscoon, gunting, pinset anatomi, spuit 10 ml steril, 1 ampul lidocain.
   c. Termometer, tensimeter, stetoskope, pita pengukur dan jam tangan
   d. Obat-obatan yaitu oksitosin, lidocain, epineprin, cairan infus, metil ergometrinmaleat
   e. Perlengkapan perlindungan diri (APD)
   f. Perlengkapan ibu dan janinnya yaitu baju bersih, bedong, baju anak, kaus tangan dan kaki

   - Peralatan, obat-obatan, dan perlengkapan bayi telah disiapkan

7. Memberi tahu ibu bahwa pemeriksaan dalam akan dilakukan 4 jam lagi dan pemeriksaan denyut jantung bayi serta nadi ibu setiap 30 menit yaitu pukul 19.00 WIB atau bila ada indikasi.
    - Ibu mengerti dan bersedia di periksa
8. Melakukan pendokumentasian

- Dokumentasi telah dilakukan

Catatan Perkembangan II Pukul 17.30 WIB

S : Ny. L mengatakan ingin mengejan dan keluar cairan

O : KU : Baik Kesadaran : CM

TD : 120/80mmHg RR : 20 x/menit

HR : 84 x/menit T : 36.5^0C

DJJ : 142x/ menit teratur

His : 4x10’ lamanya 45 detik, kekuatan kuat

VT : v/v tenang, d/v licin, portio tak teraba, pembukaan lengkap, selaput ketuban (-), presentasi kepala, H II, STLD (+), AK (+) jernih

A: Ny. L usia 31 tahun $G_2P_1A_0$ uk 39^{+5} minggu inpartu kala II, janin tunggal, hidup, presentasi kepala

P :

1. Memberitahu ibu tentang hasil pemeriksaan dan kemajuan persalinan bahwa keadaan ibu dan janin dalam keadaan baik.
    - Ibu mnegerti dan paham
2. Memberikan dukungan moral pada ibu dengan menghadirkan orang terdekat yaitu suami
    - Suami menemani ibu memberikan semangat dan membantu memberikan makan minum kepada ibu.
3. Memberi kesempatan pada ibu untuk memilih posisi yang nyaman pada proses persalinan
    - Ibu memilih posisi terlentang
4. Memberikan minuman saat tidak ada his agar ibu bertenaga dan mencegah dehidrasi.

- Ibu bersedia mimum saat tidak ada his.

5. Melakukan pertolongan persalinan sesuai dengan APN
   - Pasien di tolong secara prosedural
6. Mendekatkan peralatan pertolongan persalinan, penolong memakai perlindungan diri, topi, kacamata, celemek, sepat/sandal tertutup. Jika kepala bayi tampak di vulva dengan diameter 5-6 cm, letakkan handuk bersih diatas perut ibu. Meletakkan kain 1/3 bagian dibawah bokong ibu. Mematahkan oksitosin, membuka partus set, membuka spuit 3 cc dan menaruhnya di bak partus set. Tangan sebelah kanan memakai sarung tangan dtt/steril kemudian mengambil spuit tadi mengisi 10 iu oksitosin dan meletakkan kembali di bak partus. Saat kepala membuka vulva dengan 5-6 cm lindungi perinium dengan satu tangan yang dilapisi kain 1/3 kain tadi dan letakkan tangan yang lain di kepala bayi dan melakukan tekanan yang lembut dan tidak menghambat lahirnya kepala bayi, membiarkan kepala bayi lahir perlahan-lahan Memeriksa adanya lilitan tali pusat. Menunggu hingga kepala bayi. melakukan putaran paksi luar secara spontan. Setelah kepala melakukan putaran paksi luar tempatkan kedua tangan di kedua sisi muka bayi secara biparietal. Menganjurkan ibu mengedan saat ada kontraksi, dengan lembut tarik kepala bayi kebawah untuk melahirkan bahu anterior dan kemudian keatas untuk melahirkan bahu posterior. Setelah kedua bahu bayi lahir susuri tangan mulai dari kepala bayi kearah perinium, gunakan tangan bagian bawah untuk menyangga tubuh bayi saat melahirkan. Setelah tubuh bayi dan lengan lahir kemudian susuri badan bayi mulai dari punggung kearah kaki bayi dan pegang kedua mata kaki bayi dengan hati-hati membantu kelahiran kaki bayi. Letakkan bayi diatas perut ibu. Lakukan penjepitan tali pusat dengan dua buah klem dua senti dari perut bai kemudian jarak tiga senti dari klem pertama. Lakukan pemotongan tali pusat. Menilai bayi dengan cepat mengeringkan bayi dengan handuk kemudian menggantikan handuk dengan kain yang kering. Memberikan bayi kepada ibu untuk IMD dengan cara bayi ditengkurapkan diatas dada ibu biarkan bayi mencari puting susu ibu
   - Pada tanggal 21 Januari 2023 Jam 17.55 WIB bayi lahir spontan, menangis

kuat, cukup bulan, jenis kelamin perempuan berat badan 3500 gram, panjang badan 50 cm, lingkar dada 34 cm, lk 33 cm, Tidak ada cacat bawaan pendarahan kala II ±150cc.

Catatan Perkembangan Kala III

Tanggal 21 Januari 2023 pukul 17.55 WIB

S: Ibu mengatakan perut mules

O: Keadaan baik kesadaran compos mentis TD : 110/80 mmHg, N : 80 x/mnt, R: 20 x/mnit, S : 36,6ºC. TFU sepusat. Kontraksi uterus baik. Kandung kemih kosong. Plasenta belum lahir.

A: Ny. L usia 31 tahun P2A0 inpartu kala III

P:

1. Melakukan Manajemen Palpasi Abdomen untuk mengetahui kemungkinan adanya bayi kedua.
   Evaluasi: tidak ada janin
2. Memberikan oksotosin 1 ampul 10u secara IM di 1/3 paha bagian luar.
   Evaluasi : oksitosn telah disuntikan.
3. Melakukan peregangan tali pusat terkendali sehingga dapat diketahui apakah plasenta sudah lepas atau belum dari dinding rahim, yaitu yang ditandai dengan : uterus berubah bentuk menjadi bulat, tali pusat memanjang, keluar semburan darah mendadak dari vagina.
   Evaluasi : sudah ada tanda-tanda pelepasan plasenta.
4. Membantu melahirkan plasenta dengan benar dan baik serta memeriksa kelengkapan plasenta.
   Evaluasi : Plasenta lahir spontan jam 18.00 WIB dengan panjang tali pusat ±50cm,berat ±50gr,diameter 20 cm,tebal 2,5cm lengkap dengan selaput dan kotiledonnya.
5. Melakukan massase fundus uteri sebanyak selama 15 detik searah jarum jam
   Evaluasi : fundus teraba keras 2 jari di bawah pusat.
6. Melakukan pemeriksaan pada perineum ibu.
   Evaluasi : Perineum rupture derajat II jahit dengan anestesi, tidak ada tanda-tanda infeksi ,pengeluaran lochea berupa darah (lochea rubra) dan tidak

berbau. Perdarahan ± 150 cc.

Catatan Perkembangan Kala IV

Tanggal 21 Januari 2023 pukul 18.00 WIB

S: Ibu merasa lelah

O: Keadaan ibu baik, TD : 110/80, terdapat rupture perineum grade II, perdarahan kurang lebih 150 cc

A: Ny. L usia 31 tahun P2A0 inpartu kala IV

P:

1. Melakukan heacting dengan anastesi lidocain
   - Heacting telah dilakukan
2. Membersihkan ibu dan merendam alat
   - Ibu telah dibersihkan dan alat sudah direndam dalam larutan klorin
3. Melakukan pengukuran antropometri dan pemeriksaan fisik pada bayi, serta memberikan salep mata dan injeksi vitamin K1
   - BB : 3500 gram, PB : 50 cm, LK: 32 cm, LD: 34 cm, LiLA : 11 cm, Anus (+)
   - HR : 140 x/m, RR 45 x/m, T : 36.5^0C
   - Salep mata dan injeksi vitamin K1 sudah diberikan
4. Merapikan bayi dan memberikan bayi kepada ibu untuk disusui.
5. Memantau kontraksi uterus, TFU, pengeluaran pervaginam, kandung kemih dan tanda vital tiap 15 menit pada jam pertama dan 30 menit pada jam kedua
   - Hasil terlampir pada partograf
6. Mendokumentasikan asuhan yang telah diberikan.

ASUHAN KEBIDANAN PADA IBU NIFAS

ASUHAN KEBIDANAN PADA IBU NIFAS
NY. L USIA 31 TAHUN P2A0 POST PARTUM SPONTAN HARI KE I

Tempat Pengkajian : PMB Widawati Rahayu
Tanggal/Waktu Pengkajian : 22 Januari 2023/08.00 WIB

S

Ibu mengeluh masih lelah, perut terasa mules, nyeri luka jahitan, BAB -, BAK +.
Riwayat persalinan: tanggal 21 Januari 2023 pukul 17.55 WIB, normal.

O

KU	: Baik
Kesadaran	: Composmentis
TTV	: TD : 110/80 mmHg RR : 20x/menit N : 80x/menit S : 36,8°C
Kontraksi uterus	: keras
TFU	: 2 jari di bawah pusat
Lochea	: rubra
Luka heacting	: masih tampak basah

A

Ny. L usia 31 tahun P2A0 post partum spontan hari ke 1

P

1. Memberitahu tentang hasil pemeriksaan pada ibu bahwa ibu dalam kondisi baik TD 110/80x mmHg, ibu mengerti dan mengetahui kondisinya
2. Mengajarkan ibu posisi dan perlekatan yang benar pada saat menyusui. Posisi menyusui yang benar adalah

Bayi dipegang dengan satu lengan. Kepala bayi diletakkan dekat lengkungan siku ibu, bokong bayi ditahan dengan telapak tangan ibu.

- Perut bayi menempel ke tubuh ibu.
- Mulut bayi berada di depan puting ibu.
- Lengan yang di bawah merangkul tubuh ibu, jangan berada di antara tubuh ibu dan bayi. Tangan yang di atas boleh dipegang ibu atau diletakkan di atas dada ibu.
- Telinga dan lengan yang di atas berada dalam satu garis lurus.

  Perlekatan yang benar adalah:

  - Dagu menempel ke payudara ibu.
  - Mulut terbuka lebar.
  - Sebagian besar areola terutama yang berada di bawah, masuk ke dalam mulut bayi.
  - Bibir bayi terlipat keluar.
  - Pipi bayi tidak boleh kempot (karena tidak menghisap, tetapi memerah ASI).
  - Tidak boleh terdengar bunyi decak, hanya boleh terdengar bunyi menelan.
  - Ibu tidak kesakitan.
  - Bayi tenang.

3. Menganjurkan ibu untuk makan makanan bergizi, makanan yang mengandung protein, vitamin dan mineral, seperti telur, ikan laut, sayur dan sebagainya serta minum air mineral setiap selesai menyusui dan memberikan vitamin A 200.000 UI
4. Menganjurkan ibu untuk tidak menahan BAK untuk mencegah terjadinya perdarahan, ibu mengerti
5. Melakukan hubungan bounding antara ibu dan bayinya. Ibu melakukan bounding
6. Menganjurkan ibu untuk istirahat yang cukup apabila bayinya tidur, ibu juga tidur agar stamina ibu tetap terjaga

7. Menganjurkan ibu untuk memberikan ASI Eksklusif selama 6 bulan pada bayinya agar nutrisi bayi baik, ibu mengerti
8. Menganjurkan ibu untuk memberikan ASI kepada bayinya minimal 2 jam sekali agar kebutuhan nutrisi bayi baik, ibu mengerti
9. Memberikan terapi obat amoxillin 3x 500 mg, paracetamol 3x 500 mg, dan Tablet Tambah Darah
10. Menganjurkan ibu untuk menjaga kebersihan genetalianya yaitu dengan cara mengganti pembalut sesering mungkin/ganti pembalut 3-4 kali perhari untuk mencegah terjadinya infeksi, ibu mengerti dan akan melakukannya

CATATAN PERKEMBANGAN

ASUHAN KEBIDANAN PADA IBU NIFAS
NY. L USIA 31 TAHUN P2A0 POST PARTUM SPONTAN HARI KE 6

Tempat Pengkajian : PMB Widawati Rahayu
Tanggal/Waktu Pengkajian : 27 Januari 2023/10.00 WIB

S

Ibu melahirkan anaknya 6 hari yang lalu, ibu merasa payudaranya terasa berat dan penuh.

O

KU	: Baik
Kesadaran	: Composmentis
TTV	: TD : 120/80 mmHg RR : 20x/menit
	N : 78x/menit S : 37,6°C
Mammae	: payudara sedikit keras, ASI +
Kontraksi uterus	: keras
TFU	: pertengahan pusat -sympisis
Lochea	: sanguilenta
Luka heacting	: tampak kering

A

Ny. L usia 31 tahun P2A0 post partum spontan hari ke 6 dengan bendungan ASI.

P

1. Memberitahu tentang hasil pemeriksaan pada ibu bahwa ibu dalam kondisi baik TD 120/80x mmHg,
   - Ibu mengerti dan mengetahui kondisinya

2. Mengajarkan pada ibu cara mengosongkan payudara yaitu dengan cara memerah atau menetekkan langsung pada bayi sampai payudara kendor/lunak
   - Ibu mengerti dan paham
3. Menganjurkan ibu untuk sering-sering menyusui paling tidak 2 jam sekali atau mengompres payudara jika terjadi pembengkakan dan mengeras, kemudian dipompa agar tidak terjadi mastitis. Menganjurkan ibu untuk memberikan ASI Eksklusif selama 6 bulan pada bayinya agar nutrisi bayi baik,
   - Ibu mengerti
4. Memberi dan memotivasi ibu bahwa ASI yang dimilikinya sekarang cukup untuk bayinya. Sehingga tidak perlu menambah susu formula untuk bayinya. Tanda kecukupan ASI bisa dilihat dari BAK dan BAB bayi. Jika bayi minimal BAK 6 kali dalam 1 hari, artinya bayi sudah cukup minum.
   - Ibu mengerti
5. Menganjurkan ibu untuk makan makanan bergizi, makanan yang mengandung protein, vitamin dan mineral, seperti telur, ikan laut, sayur dan sebagainya serta minum air mineral setiap selesai menyusui.
6. Melakukan hubungan bounding antara ibu dan bayinya.
   - Ibu melakukan bounding
7. Menganjurkan ibu untuk istirahat yang cukup apabila bayinya tidur, ibu juga tidur agar stamina ibu tetap terjaga
   - Ibu mengerti
8. Menganjurkan ibu untuk menjaga kebersihan genetalianya yaitu dengan cara mengganti pembalut sesering mungkin/ganti pembalut 3-4 kali perhari untuk mencegah terjadinya infeksi.
   - Ibu mengerti dan akan melakukannya.
9. Menganjurkan ibu untuk kunjungan ulang 1 minggu lagi,
   - Ibu mengerti

ASUHAN KEBIDANAN PADA IBU NIFAS

NY. L USIA 31 TAHUN P2A0 POST PARTUM SPONTAN HARI KE 27

Tempat Pengkajian : PMB Widawati Rahayu

Tanggal/Waktu Pengkajian : 17 Februari 2023/15.30 WIB

S

Ibu melahirkan anaknya 27 hari yang lalu, ibu merasa kondisinya membaik.

O

KU	: Baik
Kesadaran	: Composmentis
TTV	: TD : 120/80 mmHg RR : 20x/menit
	N : 82x/menit S : 36,8°C
Mammae	: ASI +
Kontraksi uterus	: Tidak teraba
TFU	: Tidak teraba
Lochea	: alba
Luka heacting	: tampak kering

A

Ny. L usia 31 tahun P2A0 post partum spontan hari ke 27

P

1. Memberitahu tentang hasil pemeriksaan pada ibu bahwa ibu dalam kondisi baik TD 120/80x mmHg.
   - Ibu mengerti dan mengetahui kondisinya

2. Memberi dan memotivasi ibu dan suami bahwa ASI yang dimilikinya sekarang cukup untuk bayinya. Sehingga tidak perlu menambah susu formula untuk bayinya.
   - Ibu mengerti dan paham
3. Tanda kecukupan ASI bisa dilihat dari BAK dan BAB bayi. Jika bayi minimal BAK 6 kali dalam 1 hari, artinya bayi sudah cukup minum.
   - Ibu mengerti dan paham
4. Menganjurkan ibu untuk makan makanan bergizi, makanan yang mengandung protein, vitamin dan mineral, seperti telur, ikan laut, sayur dan sebagainya serta minum air mineral setiap selesai menyusui.
   - Ibu mengerti dan bersedia makan makanan bergizi.
5. Memberikan KIE tentang KB.
   - Ibu dan suami berencana akan menggunakan alat kontrasepsi yang alami saja untuk sementara ini.
6. Memberikan KIE untuk menggunakan KB alamiah, seperti KB kalender, MAL, coitus interuptus, setidaknya sampai bayi usia 6 bulan.
   - Ibu bersedia memakai KB alamiah.
7. Menganjurkan ibu untuk memberikan ASI Eksklusif selama 6 bulan pada bayinya agar nutrisi bayi baik.
   - Ibu mengerti
8. Menganjurkan ibu untuk menjaga *personal hygiene*.
   - Ibu mengerti

ASUHAN KEBIDANAN PADA IBU NIFAS

NY. L USIA 31 TAHUN P2A0 POST PARTUM SPONTAN HARI KE 40

Tempat Pengkajian : PMB Widawati Rahayu

Tanggal/Waktu Pengkajian : 02 Maret 2023/15.00 WIB

S

Ibu melahirkan anaknya 40 hari yang lalu, ibu merasa kondisinya membaik.

O

KU	: Baik
Kesadaran	: Composmentis
TTV	: TD : 120/80 mmHg RR : 20x/menit
	N : 80x/menit S : 36,8°C
Mammae	: ASI +
Kontraksi uterus	: Tidak teraba
TFU	: Tidak teraba
Lochea	: alba
Luka heacting	: tampak kering

A

Ny. L usia 31 tahun P2A0 post partum spontan hari ke 40

P

1. Memberitahu tentang hasil pemeriksaan pada ibu bahwa ibu dalam kondisi baik TD 120/80x mmHg.
   - Ibu mengerti dan mengetahui kondisinya.
2. Memberi dan memotivasi ibu bahwa ASI yang dimilikinya sekarang cukup untuk bayinya. Sehingga tidak perlu menambah susu formula untuk bayinya. Tanda kecukupan ASI bisa dilihat dari BAK dan BAB bayi. Jika bayi minimal BAK 6 kali dalam 1 hari, artinya bayi sudah cukup minum.

- Ibu mengerti dan paham

3. Memberi tahu keluarga (suami, kakek, nenek) untuk mendukung ibu memberikan ASI kepada bayinya.
   - Keluarga mau memberikan dukungan
4. Menganjurkan ibu untuk makan makanan bergizi, makanan yang mengandung protein, vitamin dan mineral, seperti telur, ikan laut, sayur dan sebagainya serta minum air mineral setiap selesai menyusui.
   - Ibu mengerti dan paham
5. Memberikan KIE ulang tentang KB, Ibu dan suami tetap menolak untuk menggunakan alat kontrasepsi karena berencana memiliki anak lagi dalam waktu dekat, karena umur ibu sudah 27 tahun dan suami 27 tahun.
   - Ibu mengerti dan paham
6. Memberikan KIE untuk menggunakan KB alamiah, seperti KB seperti KB kalender, MAL, coitus interuptus, setidaknya sampai bayi usia 6 bulan. Ibu bersedia memakai KB alamiah.
   - Ibu mengerti dan paham
7. Menganjurkan ibu untuk menjaga *personal hygiene*.
   - Ibu mengerti

II. ASUHAN KEBIDANAN PADA BAYI BARU LAHIR

ASUHAN KEBIDANAN PADA BAYI BARU LAHIR
BAYI NY. L USIA 1 JAM NEONATUS CUKUP BULAN
SESUAI MASA KEHAMILAN

Tempat Pengkajian : PMB Widawati Rahayu

Tanggal/Waktu Pengkajian : 21 Januari 2023/17.55 WIB

S

Bayi lahir spontan pada tanggal 21 Januari 2023 jam 17.55 WIB, secara normal, bayi menangis kuat, warna kulit kemerahan dan bergerak aktif.

O

1. Pemeriksaan Umum

KU : Baik

Kesadaran : Composmentis

TTV : N : 130 x/menit S : 36,9°C

RR : 40 x/menit

BB : 3500 gram

PB : 50 cm

BAK +, BAB -

2. Pemeriksaan Fisik

Kulit	: Kemerahan, verniks caseosa sedikit, ada lanugo
Kepala	: Tidak ada caput succedaneum, tidak ada cephal hematoma
Rambut	: Hitam, bersih
Mata	: Simetris, sklera putih(+/+), conjungtiva merah muda(+/+)
Hidung	: Tidak ada pernafasan cuping hidung(-/-), nafas spontan
Telinga	: simetris, bentuk normal (+/+)
Mulut	: Tidak sianosis, mukosa mulut bersih, ada refleks hisap
Leher	: Tidak kaku kuduk, ada verniks caseosa

Dada : Simetris, tidak ada retraksi dinding dada

Perut : Simetris, tidak ada infeksi, tidak ada bising usus, kembung (-), tali pusat basah, tidak berbau, tidak ada perdarahan

Genetalia : Perempuan, ada lubang vagina, terdapat uretra

Ektremitas : simetris, jari lengkap (+/+), tidak odema (+/+), gerak aktif (+/+)

Anus : (+)

A

Bayi Ny. L Usia 1 jam Neonatus Cukup Bulan

P

1. Memberitahu hasil pemeriksaan kepada ibu bahwa bayi dalam keadaan baik.
   - Ibu mengerti.
2. Memberikan salep mata dan injeksi vitamin K di paha kiri bayi.
   - Bayi telah di salep mata dan di suntik vitamin K.
3. Memberikan injeksi Hb Uniject 1 jam setelah penyuntikan vitamin K untuk mencegah penyakit Hepatitis B di paha kanan bayi.
   - Bayi telah di imunisasi hepatitis B
4. Menganjurkan ibu untuk tetap menjaga kehangatan bayinya agar terhindar dari hipotermi atau kedinginan
   - Ibu mengerti dan bersedia melakukannya.
5. Mengajarkan ibu menyusui yang benar, yaitu dengan memperhatikan posisi dan perlekatan. Posisi menyusui yang benar adalah
   - Bayi dipegang dengan satu lengan. Kepala bayi diletakkan dekat lengkungan siku ibu, bokong bayi ditahan dengan telapak tangan ibu.
   - Perut bayi menempel ke tubuh ibu.
   - Mulut bayi berada di depan puting ibu.

- Lengan yang di bawah merangkul tubuh ibu, jangan berada di antara tubuh ibu dan bayi. Tangan yang di atas boleh dipegang ibu atau diletakkan di atas dada ibu.
- Telinga dan lengan yang di atas berada dalam satu garis lurus.

  Perlekatan yang benar adalah:
  - Dagu menempel ke payudara ibu.
  - Mulut terbuka lebar.
  - Sebagian besar areola terutama yang berada di bawah, masuk ke dalam mulut bayi.
  - Bibir bayi terlipat keluar.
  - Pipi bayi tidak boleh kempot (karena tidak menghisap, tetapi memerah ASI).
  - Tidak boleh terdengar bunyi decak, hanya boleh terdengar bunti menelan.
  - Ibu tidak kesakitan.
  - Bayi tenang.

6. Menjelaskan kepada ibu untuk memberikan ASI secara eksklusif setiap 2 jam selama 6 bulan agar pemenuhan gizi bayi tercukupi.
   - Ibu mengerti dan bersedia memberikan ASI.
7. Mengajarkan ibu cara perawatan tali pusat yaitu mengganti kasa sesudah mandi/ketika basah dan tidak dibubuhi apapun.
   - Ibu mengerti dan bersedia melakukannya.
8. Menganjurkan kepada ibu untuk datang ke tenaga kesehatan bila ada masalah pada bayinya,
   - Ibu mengerti

Catatan Perkembangan

ASUHAN KEBIDANAN PADA BAYI BARU LAHIR

BAYI NY. L USIA 1 HARI NEONATUS CUKUP BULAN

Tempat Pengkajian : PMB Widawat Rahayu

Tanggal/Waktu Pengkajian : 21 Januari 2023/08.00 WIB

S

Ibu mengatakan bayi tidak rewel, menghisap kuat

O

KU : Baik

Kesadaran : Composmentis

TTV : N : 135 x/menit S : 36,7°C

RR : 52x/menit

BB : 3000 gram

PB : 50 cm

BAB +, BAK +

A

Bayi Ny. L Usia 1 Hari dengan Neonatus Cukup Bulan

P

1. Memberitahu hasil pemeriksaan kepada ibu bahwa bayi dalam keadaan baik.

- Ibu mengerti dan paham kondisinya baik.

2. Menganjurkan ibu untuk melakukan tindakan pencegahan infeksi seperti mencuci tangan sebelum meneteki (menyusui) bayinya.

- Ibu mengerti dan bersedia cuci tangan

3. Menganjurkan ibu untuk menjaga kebutuhan nutrisi bayi seperti memberikan ASI setiap 2-3 jam untuk pemenuhan gizi.

- Ibu mengerti dan akan melakukan anjuran bidan.

4. Menjelaskan pada ibu tanda bahaya bayi baru lahir seperti ikhterus/kekuningan pada bayi, muntah, gumoh/ keluarnya kembali sebagian susu yang telah ditelan, diare dan oral trush/ plak-plak putih dari bahan lembut menyerupai gumpalan susu.

- Ibu mengerti tanda bahaya bayi baru lahir

5. Menganjurkan ibu untuk membawa bayi ke tenaga kesehatan apabila mendapatkan salah satu tanda diatas.

- Ibu bersedia control jika ada tanda bahaya

6. Menganjurkan ibu untuk menjaga kebersihan bayi seperti sering mengganti popok untuk mencegah terjadinya ruam popok

- Ibu bersedia menjaga kebersihan.

7. Mengajarkan ibu cara perawatan tali pusat yaitu dengan menjaga tali pusat tetap kering, tidak memberikan atau membungkus tali pusat dengan apapun.

- Ibu bersedia merawat tali pusat.

8. Menganjurkan ibu untuk kontrol ulang bayinya tanggal 27 Januari 2023.
   Ibu bersedia untuk kontrol

ASUHAN KEBIDANAN PADA BAYI BARU LAHIR
BAYI NY. L USIA 6 HARI NEONATUS CUKUP BULAN

Tempat Pengkajian : PMB Widawati Rahayu
Tanggal/Waktu Pengkajian : 27 Januari 2023/10.00 WIB

S

Ibu mengatakan bayi sehat, menyusu kuat, rewel menjelang subuh dan sekitar pusar memerah.

O

KU : Baik
Kesadaran : Composmentis
TTV : N : 140 x/menit S : 36,7°C
RR : 52x/menit
BB : 2950 gram
PB : 50 cm
BAB +, BAK +
Tali pusat : berwarna merah disekitar dan bau

A

Bayi Ny. L Usia 6 Hari dengan Neonatus Cukup Bulan

P

1. Memberitahu hasil pemeriksaan kepada ibu bahwa bayi dalam keadaan baik.
   - Ibu mengerti.
2. Menganjurkan ibu untuk menjaga kebutuhan nutrisi bayi seperti memberikan ASI setiap 2-3 jam untuk pemenuhan gizi.

- Ibu mengerti dan akan melakukan anjuran bidan.

3. Menjelaskan kepada ibu, bahwa ASI ibu cukup untuk bayi. Jika ibu merasa ASI nya berkurang saat subuh, maka yang diberi makan adalah si ibu, supaya produksi ASI semakin banyak.
   - Ibu mengerti
4. Menganjurkan ibu untuk menjaga kebersihan bayi seperti sering mengganti popok untuk mencegah terjadinya ruam popok.
   - Ibu mengerti.
5. Menganjurkan ibu untuk kunjungan ulang pada tanggal 8 Februari 2022 atau jika ada keluhan.
   - Ibu mengerti.

ASUHAN KEBIDANAN PADA BAYI BARU LAHIR

BAYI NY. L USIA 27 HARI NEONATUS CUKUP BULAN

Tempat Pengkajian : PMB Widawati Rahayu

Tanggal/Waktu Pengkajian : 17 Februari 2023/10.30 WIB

S

Ibu mengatakan bayi sehat, menyusu kuat.

O

KU : Baik

Kesadaran : Composmentis

TTV : N : 130 x/menit S : 36,5°C

RR : 49x/menit

BB : 2980 gram

PB : 50 cm

BAB +, BAK +

A

Bayi Ny. L Usia 27 Hari dengan Neonatus Cukup Bulan

P

1. Memberitahu hasil pemeriksaan kepada ibu bahwa bayi dalam keadaan baik.
   - Ibu mengerti.
2. Menganjurkan ibu untuk menjaga kebutuhan nutrisi bayi seperti memberikan ASI setiap 2-3 jam untuk pemenuhan gizi.
   - Ibu mengerti dan akan melakukan anjuran bidan.
3. Menjelaskan kepada ibu, bahwa ASI ibu cukup untuk bayi. Jika ibu merasa ASI nya berkurang saat subuh, maka yang diberi makan adalah si ibu, supaya produksi ASI semakin banyak.
   - Ibu mengerti dan akan melakukan anjuran bidan.

4. Menganjurkan ibu untuk menjaga kebersihan bayi seperti sering mengganti popok untuk mencegah terjadinya ruam popok.
   - Ibu mengerti.
5. Menganjurkan ibu untuk kunjungan ulang pada tanggal 22 Februari 2023 untuk imunisasi atau jika ada keluhan.
   - Ibu mengerti

ASUHAN KEBIDANAN PADA AKSEPTOR BARU KB
METODE AMENORHEA LAKTASI (MAL)
Ny L usia 31 tahun $P_2A_0Ah_1$ KB MAL di PMB Widawati Rahayu

NO MR : 05/22

TANGGAL/JAM : 02 Maret 2023/ 11.00 WIB

S :Ibu mengatakan memilih metode MAL untuk kontrasepsi, ibu ingin dijelaskan tentang cara KB MAL.
HPMT : - HPL : - (post partum tgl 21 Januari 2023)
Ibu mengatakan tidak memiliki riwayat penyakit sistemik/penyakit menular dan tidak memiliki riwayat penyakit ginekologi.

O :TD : 122/88 mmHg, N : 80 x/m, R : 20 x/m, S : 36,3°C, BB : 65 kg. Mata simetris, konjungtiva tidak pucat, mulut tidak sariawan, leher tidak ada pembengkakan kelenjar linfe atau vena jugularis. Payudara simetris, tidak ada benjolan. Tidak ada pembesaran atau massa dalam perut.

A Ny L usia 31 tahun $P_2A_0Ah_2$ akseptor baru metode alamiah MAL.

P

1. Menjelaskan hasil pemeriksaan pada ibu dan suami bahwa keadaannya dalam kondisi baik.
   - Ibu mengerti dan paham.
2. Memberikan penjelasan pada ibu tentang Metode Amenorhoe Laktasi :
   Metode Amenorhea Laktasi adalah kontrasepsi yang mengandalkan pemberian Air Susu Ibu (ASI) secara eksklusif, artinya hanya diberikan ASI saja tanpa pemberian makanan tambahan atau minuman apapun. Efektifitas

metode amenorhea laktasi tinggi (keberhasilan 98% pada 6 bulan pasca persalinan). Petunjuk penggunaan metode amenore-laktasi adalah sebagai berikut:

a. Bayi harus berusia kurang dari 6 bulan
b. Wanita yang belum mengalami perdarahan pervaginam setelah 56 hari pascapartum.
c. Pemberian ASI harus merupakan sumber nutrisi yang eksklusif untuk bayi, jika bayi ditambah makanan atau minuman selain ASI maka metode ini sudah tidak efektif lagi.

3. Menganjurkan ibu dan suami untuk kembali atau knjungan ulang jika ada keluhan.
   - Ibu mengerti dan paham
4. Mendokumentasikan pada buku register.

Dokumen Kunjungan Selama Hamil, Nifas dan kunjungan lainnya.

Identitas Pasien

	IBU	SUAMI/KELUARGA
NAMA		
NIK		
PEMBIAYAAN		
NO JKN FASKES TK 1: FASKES RUJUKAN		
GOL DARAH		
TEMPAT TANGGAL LAHIR		
PENDIDIKAN		
PEKERJAAN		
ALAMAT RUMAH		
TELEPON		
PUSKESMAS DOMISILI: NO REGISTER KOHORT IBU:		

Riwayat ANC

Riwayat ANC

HASIL LABORATURIUM
TRIMESTER 1

NAMA PASIEN	: LINA NUR OKTAVIA	TANGGAL	: 26/06/
ALAMAT	: BABADAN GIRI KERTO TURI	JENIS SAMPEL	: DARA
NO CM	: 0	JENIS PASIEN:	BPJS/
JENIS KELAMIN	: P	PENGIRIM	: KIA
UMUR	: 29/10/1992		

JENIS PEMERIKSAAN	HASIL	SATUAN	N
HEMATOLOGI			
Hemoglobin	9.7	gr/dl	Dewasa L : 13,0

Bila ada keraguan hasil silahkan hubungi unit Laboratorium

HE
Ni

HASIL LABORATURIUM
TRIMESTER III

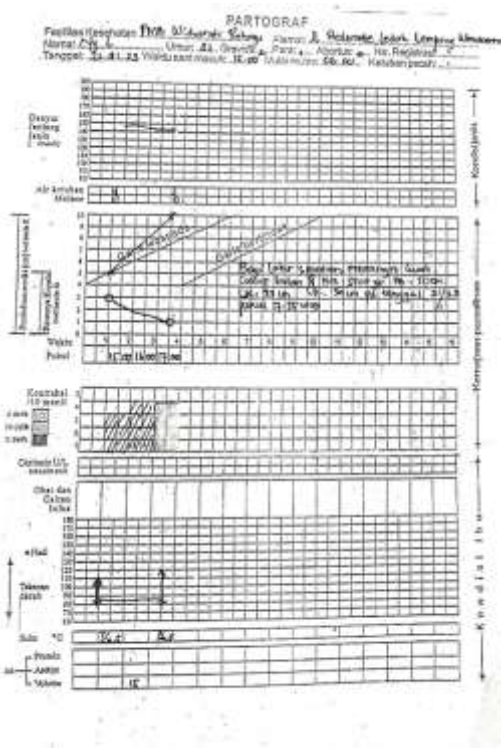
NAMA PASIEN	: LINA NUR OKTAVIA	TANGGAL	: 27/
ALAMAT	: BABADAN GIRI KERTO TURI	JENIS SAMPEL	: DARA
NO CM	: 0	JENIS PASIEN:	BPJS
JENIS KELAMIN	: P	PENGIRIM	: KIA
UMUR	: 29/10/1992		

JENIS PEMERIKSAAN	HASIL	SATUAN	
HEMATOLOGI			
Hemoglobin	10.5	gr/dl	Dewasa L : 13,0

Bila ada keraguan hasil silahkan hubungi unit Laboratorium

HE
Ni

Partograph depan



Partograph belakang

INFORMED CONSENT (SURAT PERSETUJUAN)

Yang bertanda tangan di bawah ini:

Nama	: Lina Nur Oktavia
Tempat/ Tanggal Lahir	:Sleman, 29 Oktober 1992
Alamat	:Babadan, Girikerto, Turi

bersama ini menyatakan kesediaan sebagai subjek dalam praktik Continuity of Care (COC) pada mahasiswa Prodi Pendidikan Profesi Bidan T.A. 2022/2023. Saya telah menerima penjelasan sebagai berikut:

1. Setiap tindakan yang dipilih bertujuan untuk memberikan asuhan kebidanan dalam rangka meningkatkan dan mempertahankan Kesehatan fisik, mental ibu dan bayi. Namun demikian, setiap tindakan mempunyai risiko, baik yang telah diduga maupun yang tidak diduga sebelumnya.
2. Pemberi asuhan telah menjelaskan bahwa ia akan berusaha sebaik mungkin untuk melakukan asuhan kebidanan dan menghindarkan kemungkinan terjadinya risiko agar diperoleh hasil yang optimal.
3. Semua penjelasan tersebut di atas sudah saya pahami dan dijelaskan dengan kalimat yang jelas, sehingga saya mengerti arti asuhan dan tindakan yang diberikan kepada saya.

Dengan demikian terdapat kesepahaman antara pasien dan pemberi asuhan untuk mencegah timbulnya masalah hukum di kemudian hari.

Demikian surat persetujuan ini saya buat tanpa paksaan dari pihak manapun dan agar dipergunakan sebagaimana mestinya.

Yogyakarta, 12 Desember 2022

Mahasiswa	Klien
Yulia Kristiani	Lina Nur Oktavia

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Telah selesai melakukan asuhan kebidanan berkesinambungan dalam rangka praktik kebidanan holistik Continuity of Care (COC) Asuhan dilaksanakan pada tanggal 12 Desember 2022 sampai dengan 02 Maret 2023 Judul asuhan: ASUHAN KEBIDANAN BERKESINAMBUNGAN (*CONTINUITY OF CARE/COC)* PADA NY. L USIA 31 TAHUN G2P1A0 UMUR KEHAMILAN 39 MINGGU DENGAN ANEMIA RINGAN PUSKESMAS TURI

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Yogyakarta, 12 Desember 2022

(Sri Suryanti, S.Tr.Keb.,Bdn)

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Yogyakarta, 12 Desember 2022

(Sri Suryanti, S.Tr.Keb.,Bdn)

LEMBAR PERSETUJUAN MENJADI RESPONDEN
(INFORMED CONSENT)

Yang bertanda tangan di bawah ini:

Nama	: Lina Nur Oktavia
Umur	: 31 tahun
Alamat	: Babadan, Girikerto, Turi, Sleman
No Telp/ WA	: 081391478303

Menyatakan bahwa saya **(Setuju/ ~~Tidak Setuju~~)*** berpartisipasi menjadi responden dalam kegiatan Praktik Kebidanan Holistik dengan Pendekatan Keluarga oleh mahasiswa Profesi Kebidanan Poltekkes Kemenkes Yogyakarta.

Setelah telah mendapatkan penjelasan secara rinci dan telah memahami kegiatan yang akan dilakukan. Apabila sewaktu-waktu selama kegiatan saya merasa dirugikan dalam bentuk apapun, saya berhak membatalkan persetujuan ini tanpa dikenakan sanksi apapun dan menyampaikannya kepada mahasiswa yang bersangkutan.

*Coret salah satu

Yogyakarta, 12 Desember 2022

Saksi

(Risqi Dwi Suranto)

Responden

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Review

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Women's Health

Iron deficiency anemia in pregnancy

Anemia is the most frequent derailment of physiology in the world throughout the life of a woman. It is a serious condition in countries that are industrialized and in countries with poor resources. The main purpose of this manuscript is to give the right concern of anemia in pregnancy. The most common causes of anemia are poor nutrition, iron deficiencies, micronutrients deficiencies including folic acid, vitamin A and vitamin B12, diseases like malaria, hookworm infestation and schistosomiasis, HIV infection and genetically inherited hemoglobinopathies such as thalassemia. Depending on the severity and duration of anemia and the stage of gestation, there could be different adverse effects including low birth weight and preterm delivery. Treatment of mild anemia prevents more severe forms of anemia, strictly associated with increased risk of fetal–maternal mortality and morbidity.

Keywords: iron deficiency anemia • maternal–fetal implications

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Anemia is the most frequent derailment of physiology in the world throughout the life of a woman. It is a serious condition in industrialized and semi-industrialized countries and it becomes a very serious condition in poor resources countries. Anemia is a major public health problem, causing an unfavorable status in respect to upcoming pregnancy. Among fertile, nonpregnant women, approximately 40% have low iron reserves [1].

Anemia is one of the world's leading cause of disability and thus one of the most serious global public health issues. In fact, it involves issues of morbidity and mortality, but it can be mostly the basis of the inability of the woman to react to a postpartum blood loss thus leading to serious consequences [2].

The main purpose of this manuscript is to give the right concern for anemia in pregnancy. The authors reviewed literature about anemia during gestation, providing updated and clear guidelines for the prevention and treatment of this condition, which, if not adequately treated, could lead to severe maternal and perinatal complications.

The authors tried to select recent articles about anemia in pregnancy from the database PubMed, whereas other data have been selected from international guidelines, such as WHO or CDC, in order to give updated information about this disorder. Most of these articles and guidelines have been released in the last five years. However, we also included some older studies, which seemed to be essential for describing completely the disease.

Following a complete review of literature, the authors enclose in this work risks associated with this disorder, all available diagnostic tools, different treatments and reasons why iron deficiency anemia should be prevented and treated.

Definition

Anemia is defined as the reduction in absolute number of circulating red blood cells (RBC)s, indirectly measured by a reduction in hemoglobin (Hb) concentration, hematocrit (Hct) or RBC count. WHO has defined it as Hb of <11 g/dl but, during pregnancy [3], definition of anemia is different depending on trimester (<11 g/dl in the first trimester,

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<10.5 g/dl in the second trimester, <11 g/dl in the third trimester) [4].

Prevalence

Iron deficiency is the most widespread nutritional deficiency in the world and it accounts for 75% of all types of anemia in pregnancy [5,6].

In more than 80% of countries in the world, the prevalence of anemia in pregnancy is >20% [4]. The prevalence of anemia in pregnancy varies considerably because of the differences in social conditions, lifestyles and health seeking behaviors across different cultures. Anemia can affect pregnant women all over in the world (the global prevalence in pregnancy is estimated to be approximately 41.8%) with rates of prevalence that range from 35 to 60% for Africa, Asia and Latin America and it is reported to be <20% in industrialized countries [2–3,7–8]. The lowest estimated prevalence of anemia is of 5.7% in the USA and the highest is of 75% in Gambia and 65–75% in India [7,9].

Etiology

The most common causes of anemia are poor nutrition, deficiencies of iron, micronutrients deficiencies including folic acid, vitamin A and vitamin B12, diseases such as malaria, hookworm infestation and schistosomiasis, HIV infection and genetically inherited hemoglobinopathies, such as thalassemia [10]. There is also a possible association between *Helicobacter* species infection and anemia as reported in a study of Kibru in 2014 [11].

Iron deficiency is the most widespread nutritional deficiency in the world and it accounts for 75% of all types of anemia in pregnancy. It is due to the fact that diet in pregnancy is insufficient to supply iron requirement. It has high prevalence in developing countries, but it is also relevant in developed countries where other nutritional disorders have been almost eliminated [5,6]. Main manifestations of this disorder are pallor, glossitis and while patient may complain lassitude, weakness, anorexia, palpitation and dyspnea.

During pregnancy, there is a physiological hemodilution, with a peak during 20–24 weeks of gestation, and Hb varies through trimesters [7].

In fact, it is well established that there is a physiological drop in Hb in mid-trimester. This physiological drop is due to the higher increase in plasma volume, compared with RBC mass, which slightly increases during pregnancy. This physiological process produces relative hemodilution blood viscosity, helping the blood circulation in the placenta [12].

Moreover, during pregnancy, iron deficiency is relatively common because of the increased iron demand, with a mean iron requirement of 4.4 mg/day [13], and because many women start pregnancy with poor or deplete iron stores, so the amount of iron absorbed from diet, together with that mobilized from stores, is usually insufficient to meet the maternal demands imposed by pregnancy [14]. The serum ferritin level is a marker of depleted iron stores with a cut off value of <30 µg/l [2]. The iron availability is the rate limiting factor for RBC production by bone marrow. As iron deficiency occurs, iron stores in bone marrow decreases and serum ferritin level falls. As iron is essential in order to produce RBS in bone marrow, erythropoiesis starts to be impaired when serum iron is <50 µg/dl [8].

Beyond iron deficiency, a lack of other micronutrients can occur during pregnancy, influencing fetal–maternal outcome. For instance, folic acid depletion can increase risk of neural tube defects and calcium deficiency is associated with pre-eclampsia and growth restriction. Roughly 20–30% of women show a vitamin deficiency. Hence, iron supplementation is part of multiple micronutrients supplementation in pregnant women [14].

Maternal–fetal implications

Although one of the main target of WHO is prevention and treatment of anemia in pregnancy, it is still an underevaluated problem in developing countries with different adverse effects depending on the severity and duration of anemia and the stage of gestation. WHO classifies anemia mild when Hb is 10–10.9 mg/dl, moderate with Hb level of 7–7.9 mg/dl and severe when Hb level is <7 mg/dl [15]. Conclusions of several studies are controversial about the association of mild anemia and adverse maternal and fetal outcomes, resulting in the fact that a chronic mild anemia can lead to a normal course of the pregnancy and to a labor without any adverse consequences [9]. However, there is mounting evidence that iron deficiency may interfere with a defective myelination in infants, so that the resulting anemia produces long-lasting defects in mental development and performance that may further impair the child learning capacity [16]. Furthermore, treatment of mild anemia prevents moderate and severe forms of anemia, which are strictly associated with increased risk of fetal–maternal mortality and morbidity, requiring a treatment with higher doses of iron. Therefore, every case of anemia should be treated in pregnancy, in order to prevent adverse perinatal outcomes related to this disorder, considering a threshold <11 mg/dl, a good cut off to maintain optimal Hb (10–12 g/dl) throughout gestation with a better overall outcome.

International Nutritional Anemia Consultative Group, WHO and United Nations Childrens Fund reported that iron supplementation should be given in all pregnant women, as iron requirement dur-

ing pregnancy is hard to meet only with diet, and in regions where iron deficiency anemia prevalence is >40%, supplementation should continue also in the postpartum period [5].

Even CDC suggests iron supplementation in pregnancy in order to prevent iron deficiency anemia (Box 1) [4].

Anemia in pregnant women has been considered as harmful for the fetal growth and fetal outcome. Low birth weight and preterm delivery have been persistently linked to anemia in pregnancy [21–23]. A significant increased risk of preterm birth in case of second trimester anemia has been demonstrated [21,22]. This could be explained to the state of chronic hypoxia consequent to anemia, which may induce a stress response, resulting in production of corticotropin-releasing hormone (CRH), elevated concentrations of which have been identified as a major risk factor of preterm birth. Additionally, the risk of preterm birth may increase owing to oxidative damage to erythrocytes and the fetoplacental unit.

Except for the first trimester, anemia in pregnant women has significantly increased the incidence of preterm delivery. This association appears strongest in the third trimester. There are many studies showing similar association [24–27]. Kumar *et al.* and Monika *et al.* have found such an association when mothers are severely anemic, that is, Hb <7.0 g/dl [28,29].

Furthermore, an important issue is the increased risk for growth restrictions and impairment in mental and motor development in premature infants. Additionally, premature delivery is considered a frequent cause of death in newborns.

Rasmussen *et al.* have reported an inverse relationship between the second trimester Hb value and birth weight [23]. Third trimester Hb is an important factor in determining birth weight. It is known that rapid growth of fetus occurs in the third trimester. Iron and other micronutrient demands are highest in the same trimester as well. This may explain the association of third trimester Hb and low birth weight [30].

Other complications are related with anemia in pregnancy (Box 2). A study of Colomer that showed an increased risk (5.7-fold) of anemia in infants delivered from mothers who were anemic during labor, compared with nonanemic mothers [31], and several articles reported a correlation between maternal anemia and lower Apgar scores at birth. In fact, in a study with 102 Indian mothers, Rusia demonstrated that a higher Hb level during labor was associated with better Apgar scores and subsequently decreased risk of birth asphyxia and child's disabilities [24].

Supplementing iron earlier and maintaining optimal Hb (10–12 g/dl) throughout gestation have better overall outcome regarding premature deliveries and low birth weight babies [21,22,30].

Box 1. Main reasons for iron deficiency.

Chronic blood loss
- Heavy or prolonged menstrual bleeding
- Gastrointestinal bleeding

Increased iron demand
- Pregnancy and lactation
- Adolescence

Reduced iron intake
- Vegetarian or otherwise unbalanced diet
- Eating disorder
- Disease-related anorexia (cancer)

Reduced iron absorption
- Malabsorption (chronic atrophic gastritis)
- Chronic inflammatory or malignant diseases (HAMP)

Data taken from [27–28]

Review of epidemiological studies shows that, women in low- or middle-income countries generally enter pregnancy with more limited iron stores and lower Hb concentrations compared with those who live in developed countries, consequently, an increased demand for iron in these women may thus enhance intestinal absorption, trying to compensate the iron deficiency, absorbing all iron available from diet.

Improved hematological status during pregnancy may also reduce the mortality risk in women with antepartum or postpartum hemorrhage and lead to improved iron status in the postpartum period [22,35–36]. Reducing iron deficiency anemia could be an important instrument, first, because among women, it should improve the iron stores of babies and, moreover, because there is evidence that iron status in young children predicts the risk of malaria and, possibly, the risk of invasive bacterial diseases [37].

Diagnosis

Detection of iron deficiency anemia early during pregnancy can reduce maternal and child mortality and morbidity.

Pallor of conjunctives, lips, oral mucosa, nail beds and palmar creases are possible findings in patients with anemia. Furthermore, a study of Strobach, showed a correlation between Hb concentration and the degree of pallor of lower eyelid conjunctiva, nail bed and palmar creases, demonstrating that an accurate physical examination can evaluate the severity of anemia [38], and for this reason, physical examination is an important step for the diagnose of this disorder, especially in developing countries where other tests are not available.

In case of iron deficiency anemia, a complete cell blood count shows reduced Hb concentration, reduced mean cell volume, reduced mean cell Hb, reduced mean cell Hb concentration and mild thrombocytosis.

Through the blood film, instead, in case of iron deficiency anemia, it can be possible to find microcytic hypochromic red cells with anisocytosis and poikilocytosis, but as hypochromic anemia can occur also in other cases (i.e., anemia of chronic disorders, thalassemias), other parameters should be included in the laboratory study in order to make diagnose of iron deficiency anemia. For this purpose, we can consider serum ferritin, the gold standard.

Although several authors suggest different ranges for normal and low serum ferritin, because of different methods and instruments each laboratory uses, our cut off for depleted iron stores is 30 µg/l, with a range of 30–100 µg/l at which ferritin concentrations are often inconclusive.

Nevertheless, serum ferritin is a parameter of acute-phase reaction, so its concentration increases in case of infections, systemic inflammations, malignancies, hepatopaties and chronic renal failure. This is why low levels of serum ferritin can be diagnostic of iron deficiency but normal values cannot exclude an iron shortage, and in such a situation, a decreased serum iron concentration has to be associated with a diminished transferrin saturation to diagnose iron depletion [8].

In fact, during iron deficiency states, liver produces more transferrin, but transferrin saturation decreases due to the low amount of iron storage, but also transferrin production is influenced from infections and inflammatory states, so that other parameters should be used in order to make an accurate evaluation of iron situation.

For this purpose, new tools are available today. For instance, soluble transferrin receptor protein is a peptide deriving from transmembrane transferrin receptor, which is expressed in iron requiring cells; therefore, soluble transferring receptor concentration is directly proportional with cellular receptor density, revealing total iron demand. Furthermore, this parameter seems to be unaffected from inflammatory states and chronic diseases [39].

Red cell distribution width is another parameter in fully automated hematology analyzer that can give the idea of early iron deficiency, earlier than other tests. It shows red cell size's variation, which is the earliest morphologic change occurring in iron deficiency anemia. Unlike mean cell volume, which appears normal in prelatent and latent stage of iron deficiency, red cell distribution width would be expected to increase as a result of a microcytic population of cells that appears in the blood [40]. Unfortunately, it is a test that often is not available in developing countries.

Anemia is an extremely serious and widespread problem. The goal of a proper management of anemia could be facilitated by an early diagnosis.

Reticulocyte hemoglobin content is a modern marker of cellular Hb content, which can be used to evaluate states of iron deficiency. The cut off of 27.2 pg can identify iron deficiency with a sensitivity of 93.3% [41].

Hadar *et al.* investigated a new device allowing noninvasive Hb measurement [42]. The system is based on occlusion spectroscopy technology in the red/near-infrared range, producing a new biophysical signal, resulting from temporarily occluding the blood flow in the measurement site. This system has been reported to give reliable and fast results (<1 min) of Hb concentration.

HAMP is a recently described amphipathic b-sheet hairpin peptide, which is expressed mainly in the liver, as a longer precursor known as pro-hepcidin [43–45], which through the binding to ferroportin, inhibits iron absoeptionin the small intestine and regulates iron release into plasma. HAMP production is homeostatically regulated by anemia and hypoxia. When oxygen delivery is inadequate, HAMP levels decrease. Consequently, more iron is made available from the diet and from the storage pool in macrophages and hepatocytes. It is known that *in utero* HAMP inhibits iron transport from maternal blood across the placenta to the fetal circulation, but it is not so well known the mechanism of distribution of this molecule inside the first trimester gestational sac [46].

Furthermore, HAMP could be a useful marker to evaluate iron availability during pregnancy, but there are few available studies in literature, and most of them involve a small number of pregnant patients. Hence, in the future, it will be necessary to conduct studies with bigger sample sizes of patients.

Box 2. Consequences of iron deficiency in pregnancy and during postpartum.

Consequences of iron deficiency in pregnancy
- Chronic placental insufficiency
- Impaired physical function
- Increased cardiac failure and related death
- Risk of severe maternal morbidity or mortality after postpartum hemorrhage
- Chronic placental insufficiency

Consequences of iron deficiency during postpartum
- Reduced milk production, shorter lactation periods
- Postpartum depression, emotional instability
- Impaired physical function

Data taken from [32–34].

Still, different HAMP measurement methods give dissimilar values, limiting comparison between studies. So, a standard range for HAMP values is needed, in order to evaluate normal and abnormal HAMP values during all stages of pregnancy.

Moreover, future studies could examine correlation of maternal and fetal HAMP values with iron bioavailability during pregnancy and with possible pregnancy complications.

Another important issue is considering that further adjustments could be added to Hb cut offs. In fact, from a study of New and Wirth of 2015, it is reported that younger pregnant patients (<15 years old) manifest anemia more commonly, when compared with older pregnant populations, and have higher risk of postpartum hemorrhage [47]. Moreover, the same work, reported different mean Hb values between non-Caucasian women and Caucasian women, and between Chinese pregnant women and Nigerian pregnant women. This confirms the need in the future to give different Hb ranges for diagnosis of anemia in pregnancy for different populations.

As mean hemoglobin values are also influenced by several factors, for instance altitude, the same author suggests adjustment of Hb levels through an algorithm. Unfortunately, other unknown influencing factors could be present and also the severity of anemia cannot be assessed with this tool. Hence, more research studies are needed in the future [47].

Management

In 2011, Stevens reported that roughly 50% of anemia in pregnant women worldwide was due to iron deficiency [48]. The correction of iron deficiency involves an appropriate diet and iron supplementation. The use of iron during pregnancy may be a preventive tool to improve maternal hematological status and birth weight. The WHO has long recommended the prenatal use of iron supplements in low- and middle-income countries, as well as in many high-income countries [4–5,49].

Infectious and parasitic diseases cause about the remaining half of cases of anemia, and implementing measures to improve sanitation and disease control is expected to be a substantial contribution to anemia reduction [48].

Oral iron replacement therapy with gradual replenishment of iron stores and restoration of hemoglobin is the preferred treatment. Formulations may contain either the bivalent ferrous form or the trivalent ferric form, with the consideration that bivalent iron preparations are easily absorbed compared with the trivalent formulations.

The poorer bioavailability of trivalent ferric form is due to the lower solubility of the ion on alkaline environment and to the fact that it needs to be converted in the ferrous form, to be absorbed from the bowel. Furthermore, ferric iron formulations are more expensive and need a greater number of intakes in order to be effective.

The most common ferric formulation used for oral supplementation is ferric–polymaltose complex and several studies show that it is less effective and higher in cost compared with the ferrous sulfate formulations [50,51].

Unfortunately, ferrous iron preparations are associated with several adverse effects like gastric irritation, diarrhea, constipation, free radical generation, vomiting and abdominal pain, which can be reduced by administrating tablets after meal, but this would decrease iron absorption and the effectiveness of therapy.

However, it has been recently seen that a specific iron sulfate formulation in a polymeric complex is able to provide a gastric protection through a gradual intestinal release at levels of duodenum and jejunum. The best described is Tardyferon®, whose active ingredient is ferrous sulphate sesquihydrate present in an amount of 256.30 mg, and equivalent to 80 mg of elemental iron. Tardyferon contains mucoproteosis which contributes to a constant and slow release of iron ions Fe^{2+}. The iron is gradually released with a peak of serum iron after 7 h, remaining elevated for 24 h [50]. In this way, an initial concentration rich in iron is avoided and this helps in reducing the percentage of undesirable secondary effects and facilitates compliance.

Parenteral iron therapy, given either by intramuscular or intravenous route, may be used if anemia is moderate or severe, if oral therapy has failed or in case of mild anemia, oral route is not tolerated or the patient tolerance is low.

Intravenous iron therapy is a safe alternative since it is able to reduce the need for blood transfusion. Furthermore, side effects related to supplementation of iron through this route, such as anaphylactic shock, febrile and hemolytic reactions, infections (hepatitis B, C, HIV, protozoan and bacterial) alloimmunization and graft versus host disease are very rare [52].

Shafi *et al.* in a study comparing intravenous versus oral route of administration of iron demonstrated that iron sucrose is an effective alternative to oral ferrous ascorbate in the treatment of iron deficiency anemia of pregnancy. They showed that intravenous iron sucrose produces more rapid increase in hemoglobin concentration and serum ferritin levels than oral ferrous ascorbate during the same time span [52].

Ferric carboxymaltose represents a new formulation for intravenous iron treatment, which, it has been demonstrated, can be used at high doses (up to 1000 mg)

with better toleration and effectiveness, during second and third trimester of pregnancy, and with fewer side effects compared with iron sucrose formulation, also when the dose is double [53].

Another study shows effectiveness of ferric carboxymaltose for treatment of iron deficiency anemia, increasing levels of Hb and improving iron stores, and with good tolerability [54].

Although the Institute of Medicine reports that a dose of iron >45 mg/day can be associated to higher frequency of gastrointestinal side effects [45], the recommended dose of iron by WHO is 60 mg/day [55,56].

Haider *et al.* demonstrated a linear decrease in maternal anemia with higher doses of iron, up to 66 mg/daily. It has been demonstrated that these doses of iron were associated with a linear increase in birth weight and decrease risk of low birth weight, as well as positive, linear dose–response relation with risk of maternal anemia, indicating a benefit of giving higher, up to 66 mg/day, rather than lower doses [57].

Contrarily, the recommended daily dose for treatment of manifest iron deficiency anemia is at least 120–200 mg/day up to 1000 mg/day, as demonstrated for ferric carboxymaltose [55].

In fact, a manifested anemia, especially when severe, put the patient at higher morbidity and mortality risk during and after labor, that requires a higher iron dose supplementation during pregnancy.

In a recent review, Haider *et al.* did not find any evidence of reduction in risk of preterm birth as a result of iron use [57]; this aspect however needs further studies before a definitive positive or negative relationship can be demonstrated.

It has also be recently proposed an iron and folic acid supplementation program for the prevention of anemia in pregnancy with different characteristics according to the population to be treated [7].

Folic acid is a vitamin, belonging to group B, essential for DNA synthesis and for a physiological development of neural tube. During pregnancy, the folate requirement increases with the growth of the fetus, and a deficiency of this vitamin can cause megaloblastic anemia. For this reason, it has also be recently proposed an iron and folic acid supplementation program for the prevention of anemia in pregnancy with different characteristics according to the population to be treated.

A review by Yakoob *et al.* evaluated the effect of iron alone or iron/folate supplementation versus no intervention or placebo in the treatment of anemia in pregnancy at term and iron deficiency anemia in pregnancy at term. In the study, both daily iron supplementation alone and daily supplementation with iron/folate resulted in 73% reduction in the incidence of anemia at term of pregnancy when compared to no intervention/placebo. Otherwise however, daily iron supplementation alone resulted in 67% reduction in iron deficiency anemia at term, whereas daily supplementation with iron/folate resulted in a not-significant effect both when compared to no intervention/placebo. Furthermore, they showed a statistically significant reduction of incidence of iron deficiency anemia with iron supplementation alone, and a positive, but not statistically significant effect of iron, when associated with folate, in improving incidence of iron deficiency anemia [58].

Another study reported that either iron supplementation alone or iron/folate, are effective in decreasing incidence of anemia at term in pregnancy [59], and in addition, a work of Juarez-Vazquez *et al.* showed a better effect of iron when associated with folic acid in treatment of anemia in pregnancy, irrespectively of blood levels of folate [60].

However, the use of iron supplementation as part of multiple micronutrient supplementation for prevention of anemia and adverse pregnancy outcomes represents an important issue. There has been a lot of recent data on this and the recommendation from WHO may change in favor of multiple micronutrients compared with iron/folate.

Improved hematological status during pregnancy may also reduce the mortality risk in women with antepartum or postpartum hemorrhage and lead to improved iron status in the postpartum period [26,59–61].

In the end, in developing countries, although treatment of iron depletion can be an important tool in order to decrease fetal–maternal morbidity and mortality related to iron deficiency anemia, iron supplementation can lead to higher availability of the metal, increasing risk to host pathogens, which can cause severe perinatal infections. Hence, a proper antibiotic treatment or prophylaxis for some endemic infections during pregnancy, like malaria, can be a good approach [61].

Another important issue is the association between iron excess and tissue damage. As iron is able to catalyze formation of hydroxyl radicals, excessive accumulation of the metal can increase oxidative stress with possible tissue damage; indeed, several studies demonstrated a link between high-iron storage and gestational diabetes, diabetes Type II and other diseases [62–64], and for this reason, it has been supposed that iron intake could be associated with increased risk of diabetes.

However, several studies demonstrated that tissue damage occurs only with chronic heme iron intake, leading to high-iron body stores [63]. Furthermore, nonheme iron, included supplemental iron, was not related to increased risk of Type II diabetes [65].

Conclusion

Due to the high implication of maternal and perinatal morbidity and mortality related to the iron deficiency anemia, it is necessary to act through:

- Early detection in order to prevent fetal–maternal morbidity and mortality associated with this condition. Modern laboratory parameters could help in differential diagnosis of anemia, but as previously explained, this problem is more common in developing countries where laboratory studies are not available, and noninvasive diagnostic capabilities are often needed. For this purpose, accurate physical findings and evaluation of pallor of eyelid mucosa, palmar creases and nail bed should be performed;
- Prevention of gastrointestinal infestations, which can cause half of anemia burden, is necessary. Early diagnose and treatment could decrease prevalence of such infestations. In the areas where infections from internal parasites are endemic, anthelmintic therapy should be given in cases of severe anemia;
- Iron supplementation given through the best route of administration. More often, oral ferrous iron formulations are used, due to their effectiveness and low cost. Parenteral treatment should be isolated to treat moderate and severe cases of anemia, when a rapid iron supplementation is needed.

Several strategies should be adopted worldwide in order to prevent and treat anemia, so that the delivering woman would be able to face at least mild postpartum hemorrhage.

With this purpose, World Health Assembly has proposed a target of 50% reduction in anemia in women by 2025, and specific attention to maternal anemia as a problem of importance is now given by the US Global Health Initiative's Feed the Future program.

Future perspective

Due to severe implications and high rate of occurrence, iron deficiency anemia in pregnancy has been widely studied with its related complications, all available diagnostic tools and therapeutic strategies.

However, several points still need to be cleared. For instance, as previously showed in this manuscript, the knowledge about HAMP as a marker of iron status and its correlations with some fetal–maternal complications is still incomplete. Furthermore, the evaluation of different cut offs of Hb concentration for populations from different regions seem to be another important issue to be cleared for diagnosis of iron deficiency anemia.

Moreover, many diagnostic tools are not available in developing counties, because they are considered too expensive, with a consequently hard diagnosis of mild or moderate cases of anemia, increasing all risks related to more severe forms of this disease.

Research in the near future, and international organizations, should perform the task to improve management of anemia worldwide, lowering costs of diagnostic tools in developing countries, finding new markers for iron states and revealing other relations between iron deficiency states and fetal–maternal complications.

Financial & competing interests disclosure

The authors have no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.

No writing assistance was utilized in the production of this manuscript.

Executive summary

- Anemia in pregnant women has high prevalence worldwide, with possible serious fetal-maternal sequelae. The main purpose of this manuscript is to give the right concern for anemia in pregnancy.
- Most common causes of anemia are poor nutrition, deficiencies of iron, micronutrients deficiencies including folic acid, vitamin A and vitamin B12, diseases such as malaria hookworm infestations, schistosomiasis, HIV infection and genetically inherited hemoglobinopathies.
- We consider anemia as mild, moderate and severe based on hemoglobin concentration.
- Several adverse effects can be associated with iron deficiency anemia in pregnancy depending on severity and gestational age.
- Iron deficiency anemia has been linked to low-birth weight and preterm delivery in several studies.
- Prevention of anemia and treatment of mild forms prevent moderate and severe cases, which are related with increased risk of fetal-maternal mortality and morbidity.

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The Journal of Maternal-Fetal & Neonatal Medicine

ISSN: 1476-7058 (Print) 1476-4954 (Online) Journal homepage: http://www.tandfonline.com/loi/ijmf20

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To cite this article: Olga Pustotina (2016) Management of mastitis and breast engorgement in breastfeeding women, The Journal of Maternal-Fetal & Neonatal Medicine, 29:19, 3121-3125, DOI: 10.3109/14767058.2015.1114092

To link to this article: http://dx.doi.org/10.3109/14767058.2015.1114092

Accepted author version posted online: 29 Oct 2015.
Published online: 30 Nov 2015.

THE JOURNAL OF
MATERNAL-FETAL
& NEONATAL
MEDICINE

http://informahealthcare.com/jmf
ISSN: 1476-7058 (print), 1476-4954 (electronic)

J Matern Fetal Neonatal Med, 2016; 29(19): 3121–3125

DOI: 10.3109/14767058.2015.1114092

Taylor & Francis
Taylor & Francis Group

REVIEW ARTICLE

Management of mastitis and breast engorgement in breastfeeding women

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Abstract

Objective: To identify the best management approaches to mastitis management in breastfeeding women and heavy breast engorgement in the early postnatal period.
Methods: We compared various international guidelines and reviews on mastitis management in breastfeeding women and breast engorgement treatment.
Results: Effective milk removal is recommended as a first step in mastitis management. Active emptying of the breasts can prevent mastitis development in most cases. If it fails, antibiotics should be administered for 10–14 days with continuing breastfeeding. Russian guidelines recommend antibiotic therapy during 5–7 days with temporary bromocriptine-induced breastfeeding suppression. In case of heavy breast engorgement after lactation is initiated, Progesterone-containing gel can be administered. Application of the progesterone-containing gel on the breast skin improves swelling, and reduces engorgement and tenderness in 15–20 minutes.
Conclusions: Antibiotics with temporary suppression of breastfeeding are more effective than with continuing breastfeeding in mastitis management. The progesterone-containing gel is recommended on the 3rd–4th days after childbirth in heavy breast engorgement to prevent mastitis.

Keywords

Breast engorgement, breastfeeding, mastitis

History

Received 18 September 2015
Revised 15 October 2015
Accepted 25 October 2015
Published online 24 November 2015

Introduction

The incidence of mastitis among breastfeeding women in different countries varies from 2% to 33%, approximately 10% on average [1], and shows no trend towards decline. According to the official data, the incidence of mastitis in Russia is 2–3% [2], while according to the results of the Sample Survey of Reproductive Health of 10 000 Russian women conducted in 2011 by the Federal State Statistics Service together with the Ministry of Health and Social Development, the UN Population Fund (UNFPA), Centers for Disease Control and Prevention (CDC) (USA), mastitis occurs in 10% of breastfeeding women [3]. The HAI Epidemiological Service explains this data divergence by an incomplete record of postpartum diseases in hospitals.

To identify the best approaches to mastitis management in breastfeeding women, we reviewed available international guidelines [2,4–10]. We collected information about causative agents, their correlation with breast-fed infants and sensitivity to antibiotics, incidence of different types of mastitis and its main treatment principles. Usually, mastitis is predisposed by breast engorgement or blocked ducts. We analyzed the existing methods of breast engorgement management and provided pathogenic substantiation for a two-stage strategy in heavy breast engorgement in the early period after childbirth.

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Etiology of mastitis

The main causative agent of mastitis is *Staphylococcus aureus*. It is isolated as a pure bacterial culture in milk and/or purulent discharge in most women (90%), and much less frequently (10%) the bacterial culture is represented in associations with Gram-negative bacteria such as *Proteus*, *Klebsiella*, *Escherichia*, *Streptococcus epidermidis* and/or *Enterococcus*. In the majority of cases mastitis pathogenic microorganisms can be isolated from affected and healthy breasts. At the same time, the presence of pathogenic bacteria in breast milk does not necessarily indicate breast infection. *Staphylococcus aureus* can be cultured from milk of some healthy women in amounts usually not exceeding 10^2 CFU/mL, which is not require specific antibacterial therapy or restrictions of breastfeeding [11–13].

Paths of developing breast infection

The study of mother-child dyads showed that newborns are of key importance in epidemiology of mastitis. The bacterial

culture of swabs demonstrated pathogenic Staphylococci in 10–15% of newborns on their first day of life, in 70–75% on the 3rd–4th days of life and in over 90% on the 7th day of life. The bacterial flora cultured from mothers' breasts and newborns' nasopharynx is usually identical. The outbreak of Staphylococcal infection among newborns often occurs simultaneously with the increase in clinical mastitis frequency in obstetric hospitals, which strongly suggests that mastitis is caused by nosocomial infection. This fact allows one to consider mastitis as a nosocomial infection. Conversely, breastfeeding of a newborn with *Staphylococcus aureus* is the dominant path of developing breast infection. Postpartum women as well as hospital staff carrying Staphylococcus are much more seldom source of infection [12–15].

Symptoms of mastitis

Most cases of mastitis are shown to develop between the 2nd and 4th weeks after childbirth and hospital discharge, which in some cases means late diagnosis and treatment along with incorrect self-treatment.

Most often, mastitis is predisposed by breast engorgement or blocked ducts and develops from non-infective to infective mastitis leading to breast abscess. A typical feature of mastitis is rapid progression of inflammation when breast abscess develops within 4–5 days from the onset, i.e. sudden high-grade fever (38–39 °C) and breast tenderness. Along with the typical course of the disease, there can be subclinical forms of mastitis. They are characterized by vague clinical symptoms or even their total absence and discrepancy between clinical symptoms and the real course of the disease.

Treatment of mastitis

In order to prevent the occurrence of severe purulent mastitis, which require surgical intervention and lead to serious breastfeeding problems, treatment should start as soon as the first signs and symptoms of mastitis appear. Lactostasis always precedes mastitis. Hence, its rapid elimination can prevent the majority of incipient mastitis cases only by using active expression of breast milk to get rid of milk stagnation even before administering antibiotics. All international guidelines are based on the principle ''Effective milk removal'', which means more frequent breastfeeding and additional expression of milk after breastfeeding by hand or a pump. Warm breast compresses before breastfeeding and cold compresses after are recommended for pain relief along with anti-inflammatory agents such as ibuprofen or paracetamol. Good rest between breastfeeding and drinking plenty of fluids are also advised. Of note, fluid intake of up to 2.5–3 L per day does not affect the amount of milk produced. A higher volume of fluid intake (up to 4–5 L per day) may even suppress prolactin secretion by the pituitary, leading to reduced milk production. In a vast majority of cases this strategy proved to be effective as it helps to eliminate lactostasis and breast inflammation and improve mother's condition [4,16].

Persistent fever and a tender palpable breast lump 24 h after starting an active mastitis management strategy are an absolute indication to administration of antibiotics. The treatment of choice includes synthetic penicillins and cephalosporins, resistant to bacterial b-lactamases. In case of methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin should be considered. The duration of treatment is at least 10–14 days. It is recommended to continue breastfeeding, which is proved to be safe for an infant even in breast abscess [4–10]. According to the 2013 systematic review [17], antimicrobial therapy at early stages of mastitis is not feasible. The use of antibiotics within 24 h of mastitis onset is as effective in preventing breast abscess as active expression of breast milk along. This can help to avoid antibiotics in the majority of breastfeeding women. The Russian Guidelines of Mastitis Management [2] are somewhat different from the international recognized approaches to mastitis management.

Comparative analysis of Russian and international guidelines of mastitis management

A prominent Russian scientist Boris Gurtovoy, who dedicated many years of his research and clinical activities to obstetric infections, who dedicated many years of his research and clinical activities to obstetric infections and was one of the pioneers in mastitis management school in former USSR. He managed 642 breastfeeding women with mastitis in the time of a massive outbreak of Staphylococcus infection in Moscow in 1973–1977 [18]. He implemented clinical guidelines, which were followed by practitioners. Later his recommendations formed the basis for the Clinical Guidelines for mastitis management of the Russian Society of obstetricians and gynecologists [2].

The comparative analysis of the Russian guidelines of mastitis management with international ones showed differences in terminology of mastitis development stages. Serous, infiltrative and purulent forms of the disease correspond to non-infective, infective forms of mastitis and breast abscess.

The incidence of purulent mastitis (breast abscess) in USSR use to be very high because of late mastitis development between the 2nd and 4th weeks after childbirth, which in some cases means untimely diagnosis and late treatment along with incorrect self-treatment. The average time from the onset of the disease to hospital admission was 15 days, so more severe purulent forms developed in 64% of patients: infiltrative purulent – in 54%, phlegmonous – in 9%, and gangrenous – in 1% of patients, while breast abscess was diagnosed only in 36% of patients. Moreover, a prolonged hospital stay of post-operative patients resulted in recurrent infection of their surgical wounds because of contamination with different hospital-acquired strains. The number of coliform gram-negative bacteria, especially *Proteus*, in the wound discharge rapidly increased. It significantly complicated the course of the disease and often required repeated surgeries. Gentamycin and lincomycin are recommended in such cases as well as in a recurrent infection during the postoperative period, bacteria being taken into account (associations of pathogenic Staphylococcus and gram-negative microorganisms). Proteus and other gram-negative bacteria are resistant to other antibiotics [13,19,20].

According to recent Russian [2] and international studies [15,16], advanced forms of breast abscess, including those caused by reinfection of a postoperative wound, occur more

DOI: 10.3109/14767058.2015.1114092

rarely than in USSR. The reason for this may be an earlier discharge of patients from hospital after mastitis surgery and their management in out-patient settings. Such approach contrary to a longer stay of maternity patients in hospital allows minimization of postoperative wound contamination risks with hospital infections and considerably improves their recovery prognosis.

Russian experts recommend temporary discontinuation of breastfeeding in order to prevent severe purulent forms of the disease and reinforce antibiotics effect. All therapeutic measures have to be focused on a rapid response to breast inflammation to prevent pus formation. Thus, temporary lactation suppression should be additionally considered. The prolactin inhibitor – bromocriptine is recommended as a suppressive agent [21]. Such strategy is based on the following facts: mastitis usually develops in breastfeeding women (''no lactation – no mastitis''), mastitis does not occur in postpartum women whose lactation is suppressed, and experimental data indicate high susceptibility to breast infection in breastfeeding animals.

Originally, a combination of estrogen and androgen was used to suppress lactation along with diuretics, osmotic laxatives and ointment compresses. The use of non-pharmacological measures of lactation suppression (e.g. tight breast compression, fluid restriction and avoidance of breast milk expression) in mastitis is unwarranted and ineffective.

Since the beginning of the 1970s bromocriptine, which inhibits prolactin secretion (the main hormone of galactpoiesis), has been used. To suppress postpartum lactation, bromocriptine is administered orally 2.5 mg 2–3 times a day for 3–5 days. Concurrent administration of antibiotics with prolactin inhibitor rapidly results in breast softening, re-absorption of accumulated milk and resolution of inflammation. Small doses of bromocriptine in short-course treatment enable to avoid subsequent cessation of milk production and resume breastfeeding [21,22].

To stop lactation completely, bromocriptine is used in treatment courses, each lasting 2–3 weeks [13,21]. It is important to note that no cases of thrombosis in postpartum women taking bromocriptine have ever been reported. Shorter periods are required for galactopoiesis suppression when another dopamine receptor agonist – cabergoline – is used at 250 μg twice a day for two days [23]. Our experience in administering cabergoline to suppress well-established lactation shows that a two-day therapy is not enough. In most cases galactopoiesis is restored. For this reason, we recommend to use cabergoline for four days.

The comparison of mastitis therapy effectiveness showed better results in mastitis management with reduced galactopoiesis than with continuing breastfeeding. The criteria of effectiveness such as improved general state of patients, reversal of mastitis symptoms, normalization of body temperature and hematological parameters, prevention of purulent infiltration in the breast, wound healing and absence of repetitive surgical interventions in breast abscess revealed a significantly higher treatment efficacy of galactopoiesis-suppressive medications versus antibiotics with continuous breastfeeding. The use of such approach in Moscow enabled to reduce the incidence of purulent mastitis 3.1-fold over a 5-year period (1973–1977) [24]. Moreover, this resulted in shorter disease duration and, accordingly, antibacterial therapy (5–7 days versus 10–14 days as set by the international standards [1,4–10]) and rapid breastfeeding resume.

Breast engorgement management

Mastitis always develops from breast engorgement. Hence, its rapid resolution considerably improves the effectiveness of complex therapy. In most cases incipient mastitis can be treated by active emptying of the breast even before administration of antibiotics. At the same time, in heavy breast engorgement, which occurs on the 3rd–4th days after childbirth mostly in non-breastfeeding women, typical recommendations on intensive expression of breast milk and breastfeeding do not produce expected results and often make the situation even worse.

Breast engorgement in non-breastfeeding mothers in the first few days after childbirth is the sign of a breast dysfunction [25–27]. Lack of peripheral prolactin receptors stimulation in the breast provokes hormonal imbalance, i.e. increased level of prolactin in combination with decline of oxytocin secretion and concentration of placental steroids, primarily of progesterone (Figure 1). According to our data, serum progesterone concentration on the 3rd–4th days postpartum in women with normal galactopoiesis is on average 6.8 ± 1.8 nmol/L and prolactin concentration is 5182 ± 1117 mIU/L, whereas in breast engorgement the average progesterone level is significantly lower, while the average prolactin level is higher, i.e. 5.5 ± 1.4 nmol/L and 6632 ± 1074 mIU/L respectively ($p < 0.05$) [25].

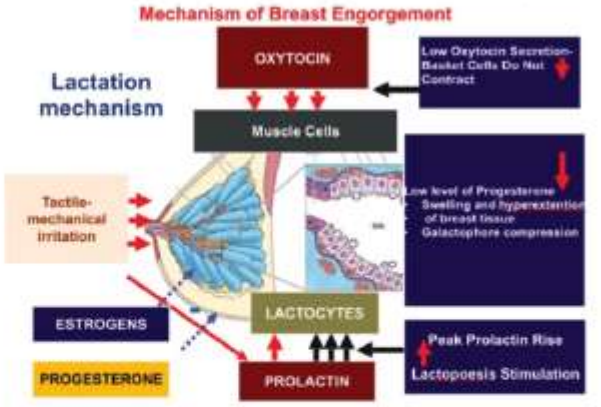
Severe swelling, breast engorgement and tenderness occur in connection with the hormonal imbalance, which disrupts both expression of breast milk and breastfeeding. Besides, heavy expression of breast milk in such conditions worsens swelling and engorgement of the breasts and may also cause hemorrhages and alveolar damage.

The review of traditional methods of severe breast engorgement management shows their ineffectiveness. Thus, cabbage leaf compresses, massage, acupuncture and physiotherapeutic procedures are barely effective, drotaverine with oxytocin injections intended to cause contraction of alveolar myoepitheliocytes are not effective either, given that milk ducts are compressed by swollen breast milk glands and, conversely, warming alcohol compresses block the effect of oxytocin on the contractile activity of alveolar myoepitheliocytes [25,27].

B.L. Gurtovoy was the first to offer a two-stage therapy of severe breast engorgement [21]. On the first stage the inhibitor of prolactin synthesis – bromocriptine – is administered during one or two days, which enables to eliminate hormonal imbalance; expression of breast milk then follows. Treatment with 2.5 mg bromocriptine 2–3 times a day leads to diminished breast engorgement in 1–2 days, provided the breasts are given rest during this period.

Since 2005, we first started to use the progesterone-containing gel (Progestogel) for transdermal therapy in women with heavy breast engorgement after childbirth. Progesterone-containing gel is widely used in gynecology to treat mastalgia and mastodynia, which develop due to progesterone deficiency, occurring in breast engorgement.

Figure 1. The mechanism of breast engorgement.



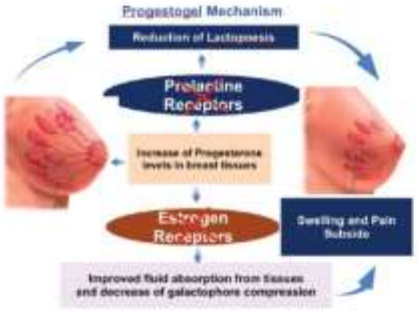


Figure 2. The mechanism of progestogel.

According to our observations, application of 2.5 g of the 0.025 g-progesterone-containing gel on the breast skin is leading to rapid reduction of breast swelling, engorgement and tenderness, which allows starting expression of milk in 15–20 minutes. Breast engorgement is eliminated in a vast majority of patients following a single application of the transdermal progesterone-containing gel. Only few of them (3% in our study) required repeated gel application to achieve clinical effect [25].

The skin application of the gel (Figure 2) compensates for progesterone deficiency caused by lactostasis in breast tissue. This stimulates loss of fluid from breast tissue and, hence, reduction of breast swelling and engorgement. In addition, progesterone at increased concentrations blocks prolactin receptors in breast tissue, resulting in decreased alveolar galactopoiesis, while exerting no systemic effect [25]. Progesterone is absorbed from tissues into bloodstream after one hour, allowing the mother to start breastfeeding. Rapid breast engorgement relief that can be completely achieved by the two-stage therapy (hormonal dysfunction correction followed by expression of breast milk) is the key element to prevent breast infection and mastitis development.

Conclusion

Having compared different guidelines, the most efficient type of mastitis management in breastfeeding women is ''Effective milk removal'' on the first stage, which leads to recovery in most women. If it fails, antibiotics with temporary breastfeeding suppression are administered. It is more effective than therapy with continuous breastfeeding.

In heavy breast engorgement on the 3rd–4th days after childbirth, the two-stage management is recommended; progesterone-containing gel should be considered. To prevent breast engorgement and consequently mastitis, it is necessary to comply with the basic principles of breastfeeding – the early start of breastfeeding and adherence to the breastfeeding technique and personal hygiene rules, breastfeeding on demand, rooming-in practice, hand hygiene and early discharge from the obstetric hospital.

To conclude, one can quote a saying of V.F. Voyno-Yasnetsky from his book ''Purulent Surgery Essays'' published in 1956: ''Mammitis is as old as the hills. Millions of women suffer from it. Doctors have been trying to treat it since the dawn of time. However, even nowadays when surgery is highly developed, we cannot boast of our perfect skills to treat mastitis. . .'' [28]. The answer to it can be a quote of B.L. Gurtovoy: ''Treatment of mastitis should begin as early as possible, when there are the first signs of it. A timely complex therapy almost always allows to prevent suppuration development'' [18].

Acknowledgements

I appreciate my colleague help Ylya Trusov for preparation of this publication.

DOI: 10.3109/14767058.2015.1114092

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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