β-hCG to verify success in medication abortion

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Verifying expulsion

• No standard has been evaluated
• No guideline mentions criteria (except PPFA)
• Various methods are used in clinical practice:
  – Ultrasound examination
  – Visual verification of expulsion following intake of misoprostol
    (in the clinic)
  – History of clinical events (heavy/continuous bleeding, pregnancy related symptoms)
  – Gynaecological examination
  – hCG in serum
  – hCG in urine (rapid test with low sensitivity)

Treatment

Day 1: Gestational sac 5 mm hCG 862
Day 3: Gestational Sac
Day 7: hCG 7

Medical abortion: Verifying expulsion, C. Fiala
(Trussel and Ellertson 1999, Paul et al., 2000)
Medical abortion: Verifying expulsion, C. Fiala

D 1: Gestational sac + yolk sac
hCG 32,000

D 3: Gestational sac

D 8: E 12 mm
hCG 837

D 28: hCG 100

D 10: E 20 mm,
hCG 16,841
D 17: stop OC
D 21: Withdrawal-bleeding

D 1: CRL 6 mm
hCG 104,900
D 3: Start OC

D 9: non-viable pregnancy
hCG 10,819
D 16: stop OC
D 18: Withdrawal-bleeding

D 19: Endometrium 8 mm
hCG 718

D 4: CRL 10 mm
hCG 83,439
D 5: Endometrium 8 mm
hCG 312

D 3: Start OC

D 9: non-viable pregnancy
hCG 10,819
D 16: stop OC
D 18: Withdrawal-bleeding

D 19: Endometrium 8 mm
hCG 718
Study on hCG and ultrasound

- 217 women with
- an unwanted pregnancy
- <49 days of amenorrhea
- received:
  - 600mg of Mifepristone orally
  - 400µg of Misoprostol orally 2 days later
  - hCG was performed at all visits
  - US was performed before Mifepristone and at follow-up

Fiala et al., Verifying the effectiveness of medical abortion; ultrasound versus hCG testing, 2003

hCG level and ultrasound finding prior to treatment

- No gestational sac: 28 - 1,752 mIU/ml
- Gestational sac, no yolk sac: 802 - 54,443 mIU/ml
- Yolk sac: 2,700 - 107,400 mIU/ml
- CRL 2 - 10mm: 22,900 - 190,750 mIU/ml

n=217, Fiala et al., 2003

Mean 3.8% (0.1-44); the size of the circles correlates with the number of patients. The smallest circles represent 1 patient, the biggest represent 25 patients. Three cases of successful abortion had a decrease of 27.32 and 44%, two cases of missed abortion had 91 and 139%, and one case of continued pregnancy had an increase of 7,900%.

Fiala et al., 2003

Serum hCG at follow-up in % of the initial value

- The correlation between ultrasound finding and hCG level is very weak
- Huge individual variation in hCG level
  ↓
- hCG persists for a long time = 1 month depending on the initial value
- Difficult to interpret hCG value at follow up without knowledge of the initial value

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Medical abortion: Verifying expulsion, C. Fiala

Verification of expulsion

- Ultrasound
  - Gives reliable results in most cases when the yolk sac or CRL was visualised before treatment
  - Is not reliable in very early pregnancy
  - Endometrium is thick in many patients at follow up even after successful expulsion

- hCG
  - Has to be used in early pregnancy
  - Is very reliable
  - Drop in hCG >80% in almost all cases of successful expulsion
  - In the remaining few cases ⇒ ultrasound examination or another follow up hCG

hCG for verification of expulsion

First trimester surgical abortion:
- Urinary test (low sensitivity of 1,000mIU/ml) at two weeks (Paul et al., 2000)

Medical abortion <9 weeks:
- Urinary test, cut off 500mIU/ml at 3 weeks (Karolinska University Hospital, Sweden)
- Urinary test, cut off 1,000mIU/ml at >1 week (Gynmed Clinic, Vienna)
- Decline in serum hCG at follow up in % of the initial value:
  - 70% on day 10 (Jourdan and van den Bossche 1991)
  - 60% at 1 week (Legarth et al. 1991)
  - 60-70.5% 24 hours following misoprostol or
  - 99.4% on day 14 (Walker et al., 2001, Honkanen et al., 2002)
  - 80% after day 6 (Fiala et al., 2003)

Endometrium thickness at follow-up

Mean 10mm (1-24mm); the size of the circles correlates with the number of patients. The smallest circles represent 1 patient; the biggest represent 10 patients

Fiala et al., 2003