Feticide

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Feticide

Induced fetal demise for selective reduction or prior to second or third trimester abortion

Many methods described
- Hyperosmolar urea
- Intrafunic or intrahepatic injection of sclerotic agents
- Intrafunic lidocaine or potassium chloride
- Intra-cardiac lidocaine
- Cord transection, cardiac puncture, air embolism
- Direct injection of potassium chloride into gestational sac
- **Intra-cardiac injection of potassium chloride**
- **Intra-amniotic or intra-fetal injection of digoxin**

Diedrich J, Drey E; Society of Family Planning. Contraception. 2010

Potassium Chloride (KCL)

Disrupts balance of intra- and extracellular potassium ions, decreasing conduction of action potentials in myocytes

Transabdominal or transcervical administration under scan guidance
2-3 ml aliquots of 2 mEq/ml solution (total needed 6-10 mEq)

Pros
- Rapid acting
- Can visualise asystole controlling dose and confirming demise
- Low risk of complications/side effects

Cons
- High degree of technical skill

Digoxin

Inhibits sodium-potassium ATPase (which regulates sodium and calcium concentrations indirectly) increasing cardiac contractility, eventually leading to AV block

Transabdominal or transcervical administration
1-2 mg in single dose

Pros
- Less skilled procedure
- Smaller needle used than for intracardiac injection (less painful)
- Low risk of complications

Cons
- Demise can take >4 hours
- Low doses fail in 8% of cases
- Nausea and vomiting

Borgatta L, Betstadt SJ Contraception. 2010;
Jackson RA, et al Obstet Gynecol. 2001

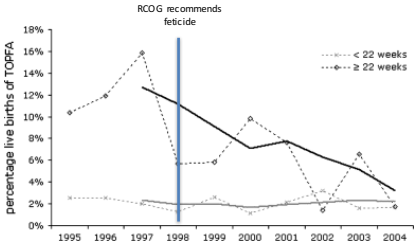
Use before medical abortion

In Britain, recommended at ≥ 22 weeks to avoid ethical and legal dilemma of periviable birth

Some provide at lower gestations as signs of life visible earlier than 22 weeks

RCOG.2010 and 2011; Graham RH et al. Prenat Diagn 2009;

Termination of pregnancy for fetal anomaly: a population-based study 1995 to 2004



BJOG: An International Journal of Obstetrics & Gynaecology
Volume 114, Issue 5, pages 639–642, 12 MAR 2007 DOI: 10.1111/j.1471-0528.2007.01279.x
http://onlinelibrary.wiley.com/doi/10.1111/j.1471-0528.2007.01279.x/full#f1

Patient and provider views in context of medical abortion

Legitimised for parents and professionals in context of fetal anomaly through the medico-legal framework

Necessary intervention to end suffering and excessive ordeal

No research of women's or providers views in context of abortion for non-fetal indications

RCOG.2010 and 2011; Graham RH et al. Prenat Diagn 2009;

KCL on outcomes with medical abortion

Two retrospective reviews conflict

- Elimian et al.: 9.5 h with KCL vs. 14.8 h without KCL (PGE2)
- Silva et al: 53.8 h with KCL vs. 42.9 h without KCL (misoprostol ± oxytocin)

One retrospective study (n=15) of mifepristone and prostaglandin in presence of placenta praevia found greater drop in haemoglobin without feticide with potassium chloride (2.5 vs. 1.0 g/dL, p=.03)

Elimian A, et al. Obstet Gynecol. 1999;94:139-41.; Silva LV, et al. Fetal Diagnostic Ther 2008;23:192-7; Ruano R. et al. Fetal Diagn Ther. 2004;19:475-8.

Use of feticide before D&E

Many providers induce fetal demise 1-2 days before D&E on the basis that

- Fetal tissues soften after demise making surgery easier, faster, and safer
- Demise induces endogenous prostaglandins improving cervical ripening
- Women prefer knowing fetus not alive at evacuation
- Avoids medico-legal dilemmas with extramural delivery

Diedrich J, Drey E Contraception. 2010; Jackson RA et al. Obstet Gynecol 2001; RCOG 2011

Women's views on digoxin before D&E

91% (n=107) of women in digoxin before D&E RCT preferred feticide (Jackson et al 2001)

- Desire for fetal death before procedure (35%)
- Belief made procedure easier (29%) or less painful (19%)
- Experience of injection not being painful (5%)
- Unsure or no answer (13%)

19% (n=26) of 134 women approached about feasibility trial of transvaginal digoxin agreed to take part (Gariepy et al 2013)

- Refusal reasons: discomfort inducing demise (37%), desire to avoid an unnecessary medication (36%), fear of pain (14%), disinterest in participating in research study (12%), fear of labor/ruptured membranes (1%)

Jackson RA, et al. Obstet Gynecol 2001; Gariepy A et al Contraception 2013

Sample narratives from patients declining study participation	
	Reason for abortion
I just want one more night with my baby.	Congenital anomaly
I don't want to walk around with a dead baby inside.	Chromosomal anomaly
I don't like the idea of not knowing when my baby died.	Chromosomal anomaly
I want the umbilical cord disconnected like would happen if the fetus was delivered in labor.	Congenital anomaly
I don't want any medicine that I don't have to have.	Undesired pregnancy
Why would I want something that I don't need?	Undesired pregnancy
I don't want another procedure.	Rape

Gariepy A et al Contraception 2013

Digoxin on outcomes with D&E

One randomised placebo controlled trial found no benefit in duration or perceived ease of D&E at 20-23 weeks gestation (n=126) with 1mg intra-amniotic digoxin 24 h prior to evacuation

A before and after study (n=1079) found significantly greater risk of extramural delivery, infection, and hospitalisation with 1mg intra-amniotic or intra-fetal digoxin compared to no digoxin 24-48h before D&E at 18-24 weeks gestation

Jackson RA, et al. Obstet Gynecol. 2001;97:471-6.; Dean G, et a;. Contraception. 2012;85:144–9

KCL on outcomes with D&E

No difference retrospectively in anaesthesia time or blood loss with potassium chloride, none or spontaneous demise at 13-24 weeks; more cervical lacerations with KCL (2 vs. 0 and 0, p = 0.010)

No randomised trial data

Singh S, et al. Fetal Diagn Ther. 2012;

BPAS Prospective evaluation of outcomes with KCL before D&E

From Feb-Jul 2014, women meeting the following criteria had potassium chloride (KCL) and osmotic dilators placed under anaesthesia with propofol and fentanyl the day before the evacuation (n=291)

- 22-23+6 weeks gestation
- 18-21+6 weeks gestation and either age ≤18 years, or BMI ≥ 33, or ≥ 2 Caesarean deliveries

From Aug 2014-Jan 2015, KCL was discontinued; osmotic dilators were inserted without anaesthesia the day prior to surgery for women meeting the above criteria (n=257)

Sample

	Feticide n=291	No Feticide n=257	p-value
Age, mean (sd)	22.4 (6.8)	22.8 (6.8)	0.7
Body mass index			
≤33	275 (94.5)	242 (94.1)	0.9
>33	16 (5.5)	15 (5.8)	
Parity			
0	199 (68.4)	166 (46.6)	0.3
1+	92 (31.6)	90 (35.4)	
Caesarean deliveries			
1	8 (2.8)	11 (4.3)	0.9
2+	10 (3.4)	7 (2.7)	
Gestation weeks + days, mean	22+2	22+2	0.9

n(%) unless noted

Procedures

	Feticide n=288*	No Feticide n=255*	p-value
Number osmotic dilators			0.000
2	1 (0.3)	4 (1.6)	
3	273 (93.8)	147 (57.2)	
4-6	17 (59.0)	106 (41.6)	
Any misoprostol	287 (99.0)	256 (100)	0.1
400 mcg	285 (99.3)	256 (100)	0.2
600 mcg	2 (0.7)	0	
Vaginal	189 (65.9)	151 (59.0)	0.2
Oral	1 (0.4)	2 (0.8)	
Sublingual	97 (33.8)	103 (40.2)	
Second set osmotic dilators	3 (1.0)	1 (0.4)	0.4
Repeat misoprostol	3 (1.0)	3 (1.2)	0.8
Time feticide and/or dilators to procedure (hours)	22.9 (3.6)	24.1 (2.2)	0.000
Additional dilatation required	21 (7.3)	17 (6.7)	0.5
Prophylactic uterotonic	235 (81.6)	185 (72.6)	0.01

N (%) unless noted

Procedure time

Procedure duration (minutes)	Feticide n=288	No Feticide n=255	p-value
Mean (sd)	12.7 (5.0)	16.1 (7.9)	0.000
Min-max	3-34	5-56	-
Median (IQR)	11 (10-15)	15 (11-19)	0.000

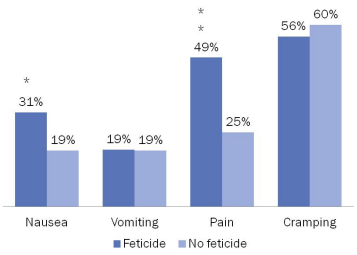
After adjustment for age, parity, prior Caesareans, gestation, BMI, surgeon, number or time osmotic dilators were left in situ KCL remained associated with a mean reduction in operating time of 3.5 minutes (95% CI 2.4-4.6)

Complications

	Feticide n=288	No Feticide n=255	p-value
Procedures with any complication	21 (7.3)	11 (4.3)	0.1
Major complications	5 (1.7)	4 (1.6)	0.9
Extramural delivery	3 (1.0)	2 (0.8)	0.7
Major atony*	1 (0.3)	1 (0.4)	0.9
Haemorrhage requiring transfusion	1 (0.4)	0	0.3
Failed procedure	0	2 (0.8)	0.1
Disseminated intravascular coagulopathy	1 (0.4)	0	0.3
Minor complications	16 (5.6)	8 (3.1)	0.2
Cervical laceration requiring repair	2 (0.7)	7 (2.8)	0.06
Drug reaction	1 (0.4)	0	0.3
Minor atony**	9 (3.1)	0	0.004
Haemorrhage, no transfusion	4 (1.4)	2 (0.8)	0.5

Feticide, age, BMI, prior Caesareans, gestation, number, duration of dilator insertion) were not significantly associated with "any complication"

Side effects



*P<0.001; **P<0.007

Conclusions

- Feticide with intra-cardiac KCL was independently associated with a modest reduction in D&E operative time but at the expense of more frequent side effects, pain and uterine atony
- Theoretical reason for difference: more consistent and longer duration of demise after KCL allows more time for maceration or cervical ripening
- A randomised evaluation is needed to determine if this apparent benefit outweighs the risks

Summary

1. Feticide is widely practiced by abortion providers but there is limited evidence that it enhances efficiency, effectiveness or acceptability
2. Feticide is associated with increased risks, particularly with D&E
3. Women's acceptability of and preferences for feticide are inconsistent and largely informed by perceived medico-legal necessity or benefit
4. The risk/benefit ratio argues against routine administration of feticide in the context of second trimester medical or surgical abortion

Thank you.

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