

# Pain in Pregnancy

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# Overview – Pain in Pregnancy

- Common problems
- Non-pharmacological Mx
- Pharmacological Mx
- Breast-feeding



**NON-  
PHARMACOLOGICAL  
MANAGEMENT**

# HEAT

Most patients will gain a degree of pain relief from the local application of heat.

- Hot water bottle
- Microwaved wheat pillow
- Hot bath



MOA : gate theory of pain and improved muscle relaxation

Myofascial pain : responds well to heat + passive stretch.

Do not use in conjunction with epidural analgesia or nerve blocks → risk of burns

# COLD

In some conditions, relief can be gained from the local application of cold

- Ice pack for headache
- Cold spray prior to passive muscle stretching.

# TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS)

- Low voltage electrical current applied through skin electrodes to activate sensory nerve fibres.
- Intensity of tactile stimulus is controlled by the patient
- Set to a level where it obscures the pain sensation
- Adaptation to the stimulus can occur → half an hour break / 4 hours of use
- Electrodes over anterior abdominal wall is avoided to minimise concerns about fetal stimulation and precipitation of premature labour

# TENS

- <70% : analgesic effect
- Can be sustained for six months
- reduces use of analgesic drugs
- MOA : gate theory & endogenous endorphin release

## **Particularly useful in**

- Back pain
- Nerve entrapments
- Tension headaches
- Pubic symphysis diastasis

# PHYSIOTHERAPY (1)

- Combats increased muscle tension & by facilitating mobilisation
- Muscle tension increased to immobilise painful area
- End result : poor posture → stiffness & increased pain in other areas, such as the lower back

# PHYSIOTHERAPY (2)

- Massage (not uterine)
- Feedback on posture
- Muscle relaxation techniques
- Exercise programmes
- Prophylactic back care classes
- Aids
  - Walking frames
  - Uterine support pillows
  - Wide sacroiliac belts

# ACUPUNCTURE

- Prescription is tailored to individual's needs
- May include treatment of neurogenic + myofascial pain
- Effective initially in 30% of patients with neuropathic pain  
49% of patients with nociceptive pain
- Long term relief : 17% of patients
- Little risk to mother and fetus
- No cases of early labour in literature

# HYPNOTHERAPY SELF-HYPNOSIS

Woman enters a trance in which she is relaxed and in which pleasurable sensations are suggested and reinforced, whilst unpleasant sensations are transformed to more tolerable or pleasant ones.



# PSYCHOSOCIAL THERAPY

Bio-psycho-social-  
spiritual-cultural  
assessment

Equals

Normal pain  
assessment



# Case Report

- 28 year old Maori woman
- Severe low back pain
- Unable to walk five metres
- 28 weeks pregnant in her sixth pregnancy
- Dx : low back pain with secondary myofascial pain  
in upper back
- No sciatica and no neurological abnormality
- Acupuncture and physiotherapy failed to achieve  
any significant improvement.

# Case Report cont.

## Subsequent psychosocial assessment

- Physically and emotionally abusive partner had recently left her taking the elder children with him.
- She now cared for the three younger children and her mother, who contributed nothing to the household chores.
- They survived on a welfare benefit and her mother's small income from a part-time job.
- Family meeting → discharged home on the same treatment, which had previously been ineffectual.

# PSYCHOSOCIAL THERAPY

Psychological stress can lower a person's pain threshold

- increased muscle tension
- exacerbation of existing pain problems
- sometimes creates pain problems

Pregnancy = time of emotional turmoil due to many factors

- Physical
- Occupational
- Family
- Social
- Financial

# PSYCHOSOCIAL THERAPY

- Determine presence of any stressors
- Evaluate the woman's response to them
- Implement management strategies  
(e.g. relaxation techniques)
- Referral to maternal mental health team

# **Close cooperation between psychologist and social worker is key to success !**

Careful psychosocial evaluation can avoid unnecessary pharmacological therapy in pregnancy

Whenever pharmacological therapy fails or no longer achieves the same degree of success, the psychosocial factors should be re-explored.

# **PHARMACOLOGICAL MANAGEMENT**

# Drug classification according to fetal risk

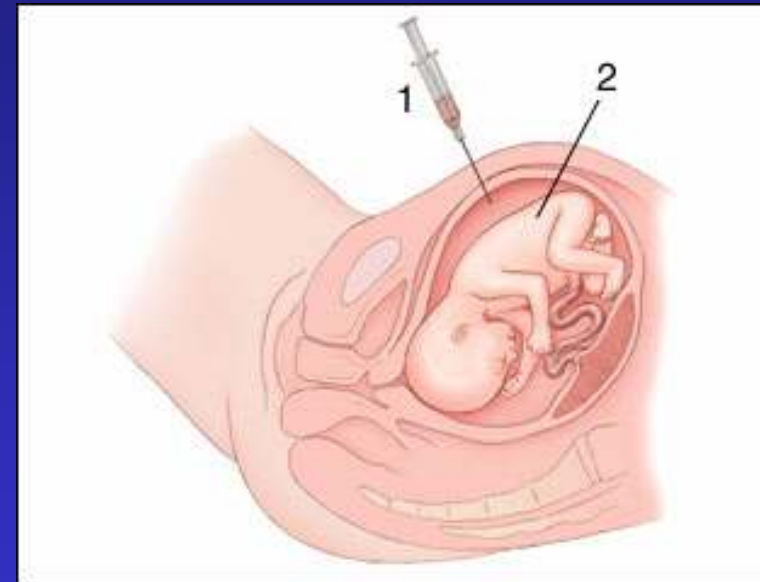
- Category **A**: Controlled studies in pregnant women fail to demonstrate a risk.
- Category **B**: Animal reproduction studies have failed to demonstrate a fetal risk or animal reproduction studies have shown an adverse effect that was not confirmed in controlled studies in women in the first trimester.
- Category **C**: Animal studies have revealed adverse effects or there are no studies available.
- Category **D**: Positive evidence of human fetal risk.
- Category **X**: Fetal abnormalities clearly outweigh any possible benefit.

# Local Anaesthetic Infiltration

- Local pharmacological therapy  
= lower plasma drug concentrations
- Local anaesthetic and steroid injections  
= analgesia for several weeks
- 1% lignocaine + 0.5% bupivacaine + steroid  
up to a maximum volume of 20mls.
- Useful in treatment of nerve entrapments,  
coccydynia, post-operative wound neuromas

## Local Anaesthetic Infiltration (2)

- If area not easily accessible with clonidine patches
  - add 25  $\mu\text{cg}$  to injection
  - prolonged analgesia
- Do not inject infected wounds
- If injection into abdominal wall during pregnancy
  - avoid placing the needle too deeply



# SYSTEMIC ANALGESIC DRUGS USED IN PREGNANCY

- Due to ethics of drug trials during pregnancy, there are no category A analgesic drugs
- Analgesic drugs used in pregnancy = Category B
- Category C and D drugs may be used in pregnancy if the benefits outweigh the risks
- Where at all possible, drugs of any category are avoided in the first trimester

<b>DRUG</b>		<b>COMMENTS</b>
<b>Paracetamol</b>	B	PK similar in pregnancy to non-pregnant state. No reports of congenital abnormalities. Maternal paracetamol overdose can cause fetal hepatic toxicity leading to fetal death.
<b>Amitriptyline</b>	D	Limb reduction abnormalities in first trimester. However, in half a million second and third trimester pregnancies where amitriptyline has been used, there were no reports of any fetal abnormalities.
<b>Mexiletine</b>	B	No data.
<b>Aspirin / NSAIDS</b>	D	3 <sup>rd</sup> trimester : Aspirin / Nsaids associated with premature closure of the ductus + pulmonary hypertension / risk of neonatal haemorrhage (especially in premature neonate) Low dose aspirin is used in the prevention of pre-eclampsia and does not appear to carry the same risks. Low dose nsaids used in the 2 <sup>nd</sup> trimester are associated with oligohydramnios.
<b>Clonidine</b>	B	There are no reports of congenital abnormalities with the use of clonidine in pregnancy.

<b>DRUG</b>	<b>CATEGORY</b>	<b>COMMENTS</b>
<b>DIGESIC dextropropoxyphene and paracetamol</b>	C/ long term D	Long term maternal ingestion is associated with a neonatal withdrawal syndrome which is more severe than with long term maternal methadone ingestion.
<b>CODEINE</b>	C/ long term D	Use of codeine in the first trimester is associated with respiratory malformations, cleft lip and palate and congenital heart disease. In the first and second trimesters codeine use is associated with inguinal and umbilical hernias. Long term codeine use can cause a neonatal withdrawal syndrome.

<b>DRUG</b>	<b>CATEGORY</b>	<b>COMMENTS</b>
<b>CLONAZEPAM</b>	C	Neonates of mothers using clonazepam may experience apneas, lethargy and hypotonia, starting at six hours post-delivery and lasting up to ten days.
<b>CARBAMAZEPINE</b>	C	Teratogenic.
<b>FLECAINIDE</b>	C	Teratogenic.
<b>VALPROATE</b>	D	Accumulates in the fetus and is associated with major and minor congenital abnormalities.
<b>GABAPENTIN</b>	C	No available data.
<b>ERGOTAMINE</b>	X	Oxytocic and vasoconstrictor effects.
<b>SUMATRIPTAN</b>	C	Fetal malformations in rabbits.
<b>BACLOFEN</b>	C	Ventral hernia in rats.

# Pain Management during Pregnancy

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## A practical approach

# Pain Management in Pregnancy

NON-PHARMACOLOGICAL THERAPIES



LOCAL PHARMACOTHERAPY



SYSTEMIC PHARMACOTHERAPY  
(Analgesic drug ladder)

# Pregnancy - Analgesic drug ladder

## **Paracetamol**

1g 4 hourly.



## **Clonidine patch TTS-1**

(=100 $\mu$ cg/day) one or two patches

If rash occurs under patch

change to clonidine tablets 150 $\mu$ cg OD or BD Diclofenac 75mg OD  
(2nd trimester only)



## **Amitriptyline**

10-50mg nocte



# Pregnancy - Analgesic drug ladder (cont.)

**Mexiletine**

50-100mg BD initially, increasing to 360mg CR OD, then BD



**Morphine**



**Methadone**

# Breastfeeding and Pain Medications



Breastfeeding - my best role ever.

	MATERNAL DOSE STUDIED	CONCENTRATION IN BREAST MILK	PERCENTAGE OF MATERNAL DOSE INGESTED (90mls milk 3hourly)	CLINICAL SIGNIFICANCE
PARACETAMOL	500-650mg	10 – 15 mg/L	0.04-0.23%	Nil
DICLOFENAC	100mg/day	<19 µcg/L	<0.0075%	Nil
AMITRIPTYLINE	100mg/day	0.151 mg/L	<1%	Unlikely
MEXILITENE	200mg TDS	959 µcg/L	0.01%	Unlikely
CLONIDINE	241 – 391 µcg/day	1.8 – 2.8 µcg/L	6.8%	No sequelae reported
ORPHENADRINE				No data
MORPHINE	15mg IV bolus PCA 30	Peak = 0.5mg/L 50-60 µcg/L		Unlikely Unlikely
METHADONE	30-73mg	Peak = 0.18-0.25mg/L	0.09-0.14%	Unlikely (12)

PETHIDINE	50mg IM; pethidine = norpethidine = 75mg IM; pethidine =	0.13mg/L at 2 hours 8.1µcg/L at 56 hours post- dose  0.209mg/L at 8 –12 hours post-dose		Neurobehavioural depression
TRAMADOL			<0.1%	Unlikely (48)
DIGESIC		Extremely low		No reports of untoward effects
CODEINE	60mg	140 µcg/L average 455 µcg/L peak	0.1%	Reports of neonatal apnoea with 60mg 4-6 hourly
CLONAZEPAM		1.0 µcg/L		Neonatal apnoea
CARBAMAZEPINE	200 – 800mg/day	1.3 – 3.6 mg/L		No toxicity / accumulation reported
FLECAINIDE	50mg BD			Risk of ingestion of toxic amounts is low as milk impairs absorption (49) (50)

VALPROATE		0.17 – 0.47mg/L	<3%	nil
GABAPENTIN				No data
ERGOTAMINE	0.2mg		<5% No problems reported in the infant.	Excess dosing may inhibit prolactin secretion and lactation. Use strongly discouraged
SUMATRIPTAN	6mg SC	87.2 µcg/L peak	3.5%	No significant risk as low oral bioavailability and a short half-life.
BACLOFEN	20mg		0.1%	nil

# Weaning off Methadone after Delivery

Weekly dose reduction due to long half-life of methadone  
Initial large drop in dose due to loss of placental metabolism

Example : 20mg methadone bd

Day after normal vaginal delivery : 10mg bd

Weekly intervals : reduction to

- 5mg bd
- 5mg od
- 2.5mg od
- 2.5 mg on alternate days
- 2.5 mg on every fourth day

Clonidine patch can decrease withdrawal symptoms

Maintain current dose for two weeks if mild withdrawal symptoms

Return to previous dose for a further week if severe withdrawal symptoms

Smaller dose decrements with severe symptoms

