

Post-op Care and Pain Management

Dr. Karima

Post-op monitoring

1. Hand-off from operation

- Who is the patient?
(premature, underlying problems or medical conditions, what was the problem/ reason for surgery, what was done?)
- Were there any problems during the operation?
(eg. airway, intubation difficulty, spasm, iv access)
- Blood loss? Fluid balance, in/out?
- Medications: given and to be given

Post-op monitoring

2. Vital signs every 15 – 30 minutes until stable
 1. Respiratory rate (stridor? secretions?)
 2. Heart rate
 3. Blood pressure
 4. Saturation if available

Age appropriate intervalls must be known!

Post-op monitoring

3. Fluid therapy

1. Per os as soon as possible
2. Continue replacement if necessary
3. Replace ongoing losses if continued
4. Maintenance fluids

Maintenance fluids

Weight (kg)	Fluid/day (ml/d)	Fluid/hour (ml/hr)
0 - 10	100ml/kg	4ml/kg
10 - 20	1000ml+ 50 ml/kg for each kg >10kg.	40ml + 2ml/kg for each kg > 10kg.
➤20	1500 ml + 20 ml/kg for each kg > 20kg.	60 ml + 1 ml/kg for each kg > 20 kg

Maintenance fluids

Example	Daily	Hourly
1. 4 kg	$4 \times 100 = 400\text{ml/d}$	$4 \times 4 = 16 \text{ ml/hr.}$
2. 12 kg	$1000 + (2 \times 50) = 1100\text{ml/d}$	$40 + (2 \times 2) =$ 44 ml/hr
3. 26 kg	$1500 + (6 \times 20) = 1620 \text{ ml/d}$	$60 + (6 \times 1) =$ 66 ml/hr

Maintenance fluids

- If giving fluids iv, monitor fluid balance so patient doesn't become overloaded!
- Monitor in/out:
 - Urine output
 - Ongoing losses
 - "Insensible loss": roughly 1/3 of maintenance requirement

Post-op complications

Laryngeal oedema

Associated with:

Large endotracheal tubes.

Endotracheal tubes made of irritant material, e.g. red rubber or irritant chemicals used in sterilising tubes.

Any infection in the upper respiratory tract or a history of croup.

Trauma to the upper airway, e.g. difficult, clumsy or repeated laryngoscopies or bronchoscopies.

These will predispose to oedema of the mucosa of the larynx.

Treatment

- Airway positioning
- Suction
- Oxygen
- Inhalation, eg. adrenalin (0,2-0,5 mg/kg in 2ml NS)
Dexamethasone 0,25 mg/kg iv

laryngospasm

This can be caused by:

Secretions or vomit

Inhalational anaesthetic agents

Attempts at intubation

Light anaesthesia

Surgical stimulus

Extubation

Laryngospasm treatment

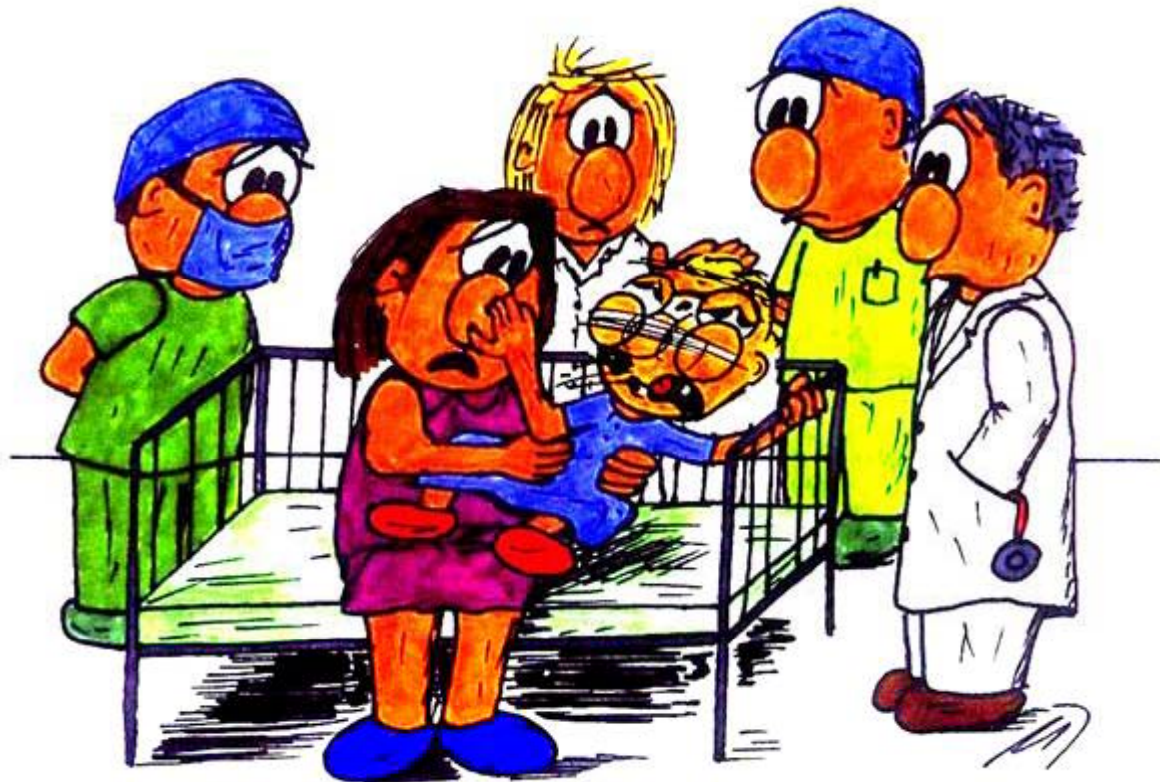
- O₂
- Open airway, suction, decrease stimuli
- If persistent, deepen sedation, re-intubate

Post-op complications

- Fluid overload
 - Observation
 - Furosemide 0,5 - 1 mg/kg iv

- Nausea / Vomiting
 - Oxygen
 - Anti-emetics, corticosteroids





14 Föreläsningens namn

Stewart discharge criteria

Parameter	Characteristics	Score
Consciousness	Awake	2
	Responding to stimuli	1
	Not responding to stimuli	0
Airway	Coughing on command or crying	2
	Maintaining good airway	1
	Required airways maintenance	0
Movement	Moving limbs purposefully	2
	Non-purposeful movements	1
	Not moving	0

DISCHARGE FROM A RECOVERY ROOM

The relevant factors, which should be considered while taking the decision about discharge to the setting where monitoring is not accessible include:

return of consciousness and stabilization of basic vital functions;

efficient breathing of the frequency typical of a given age, SpO₂ >95% without oxygen therapy.

The child may return to the ward when the observations are stable, he is fully conscious and his pain is controlled.



17 Föreläsningens namn

THANK YOU FOR YOUR
ATTENTION

Pain Management

Prof. Peter

Post-op pain management

”Infants and small children don’t feel pain.”

...nervous system is immature

- ...don’t have pain memory
- ...require less pain treatment than older patients
- ...greater risk for respiratory depression
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Pain management

Consequences of pain...

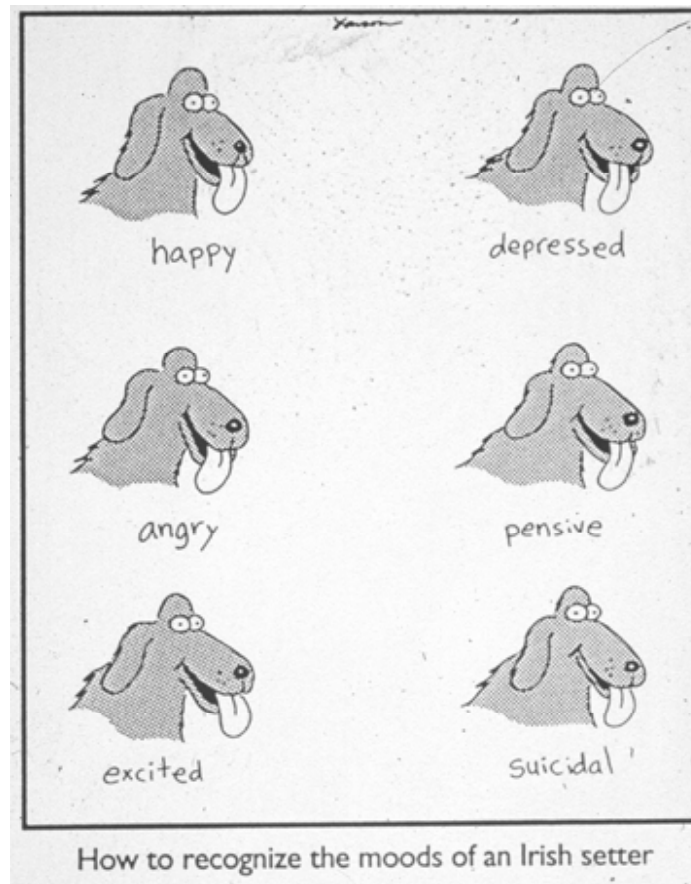
- Poor weight gain and growth
- Behavioral changes
- Poor neurologic development
- Structural changes in spinal cord

Pain management

Consequences of pain treatment...

- Complications which can delay discharge from hospital
 - Withdrawal, constipation, pruritus
 - » Playfor et al ICM 2006
- Recent research includes experimental and clinical evidence that clinically relevant doses of most commonly used anesthetic agents cause decreased synaptogenesis, apoptos, learning disability and behavioral disturbances.
 - » Ikonomidou et.al. Science 1999;283:70-74
 - » Jevtovic-Todorovic et.al. J. Neurosci 2003;23:876-882.

Evaluating pain in small children!?



Pain evaluation

Newborns and pre-verbal children

- Behavioural scales.....
Eg. ALPS

Pre-school

- Faces scale..... Eg. Bieri

School age

- VAS (Visual analogue scale)

Function handicap

- Parents can often interpret!



Post-op pain management

Combination of medications often works well:

Mild analgesic: Acetaminophen 15 -20 mg/kg x 4

Ibuprofen 10 mg/kg x 3

Potent analgesic: Morphine 0,05 - 0,1mg/kg (injecting slowly will decrease risk of nausea/vomiting)



Factors affecting pain experience

- Information and expectations
- Previous experiences
- Parent's reactions
- Cognitive/development level
- Type of pain
- Actions and attitude of medical team!



27 Föreläsningens namn



28 Föreläsningens namn



"Mr. Osborne, may I be excused?
My brain is full."

Thank –you for listening!

