SEDASI ,ANALGESIA & NEUROMUSCULAR BLOCKADE

DIVISI PGD/PICU

PENDAHULUAN

- PERAWATAN ANAK KRITIS DI PICU → ↓ TINDAKAN INVASIF, PENDERITAAN FISIK DAN EMOSIONAL
- SEDASI → ↓ KECEMASAN, AGITASI, EFEK NEUROENDOKRIN AKIBAT STRES
- ANALGESIA → ↓ NYERI AKIBAT PENYAKIT DASAR, PROSEDUR DIAGNOSTIK DAN TERAPI

→ 44% ANAK MENGALAMI PENGALAMAN NYERI DAN HANYA 28% : KONTROL NYERI YANG ADEKUAT

- SEDASI YANG IDEAL ADALAH : ONSET CEPAT, WAKTU PARUH SINGKAT, DIELIMINASI DENGAN BAIK, EFEK SAMPING ↓, INTERAKSI (-) DAN ANTIDOTUM SPESIFIK

- EFEK NEGATIF → ↑ PENGGUNAAN VENTILATOR, ANGKA KESAKITAN DAN KEMATIAN, DAN MEMPERPANJANG RAWATAN PICU

- INDIKASI & DOSIS SESUAI → KLINISI YG TERLATIH , MONITORING TERHADAP LEVEL SEDASI DAN KOMPLIKASI → ↑ KUALITAS TERAPI & ↓ EFEK SAMPING

SEDASI

- SEDASI ↓ RASA TAKUT DAN KECEMASAN, ↑ POTENSI DARI ANALGESIA DAN MENIMBULKAN AMNESIA

- SEDASI → RINGAN (*ANXIOLYSIS*), SEDANG (*CONSCIOUS SEDATION*), DALAM (*DEEP SEDATION*) DAN *GENERAL ANAESTHESIA*

- SEDASI PROSEDURAL (*AMERICAN COLLEGE OF EMERGENCY PHYSICIANS*) : PEMBERIAN SEDASI ATAU AGEN DISSOSIATIF DGN / TANPA ANALGESIA → DAPAT MENERIMA PROSEDUR YANG TIDAK MENYENANGKAN DENGAN TETAP MEMELIHARA FUNGSI JANTUNG DAN PARU

- KOMPLIKASI : ASPIRASI, HIPOVENTILASI, APNEA, OBST. JALAN NAFAS, DEPRESI KARDIOPULMONAL

- EFEK SAMPING PENGGUNAAN SEDASI ↑ PADA DOSIS BESAR, INTERAKSI OBAT DAN TH/ > 3 OBAT

- OBAT-OBAT SEDASI

  - GOLONGAN BENZODIAZEPINE (MIDAZOLAM, DIAZEPAM, LORAZEPAM)
  - GOLONGAN BARBITURATE (THIOPENTAL)
  - GOLONGAN LAINNYA (PROPOFOL DAN CHLORAL HYDRATE)

MIDAZOLAM

- PILIHAN UNTUK SEDASI KONTINYU, PADA PEMBERIAN SECARA CEPAT, DAPAT MENURUNKAN RESISTENSI VASKULER SISTEMIK DAN HIPOTENSI
- PENGGUNAAN YANG LAMA MENYEBABKAN TOLERANSI
- EFEK PUNCAK TIDAK DICAPAI SEGERA, DIPERLUKAN WAKTU 2-3 MENIT SEBELUM DILAKUKAN EVALUASI UNTUK PENGULANGAN DOSIS

MIDAZOLAM …

- KOMBINASI FENTANYL DGN MIDAZOLAM DAPAT MENINGKATKAN EFEK SEDASI DAN ANALGESIK
- EFEK OVERDOSIS MIDAZOLAM DAPAT DIATASI DENGAN FLUMAZENIL, SEDANGKAN NALOXONE SEBAGAI OPIOID ANTAGONIS

DIAZEPAM

- ONSET KERJA CEPAT, KONSENTRASI PLASMA ↓ SECARA CEPAT DENGAN WAKTU PARUH AWAL SEKITAR 10-15 MENIT
- KONSENTRASI PLASMA ↑ KEMBALI SETELAH 6-8 JAM
- WAKTU PARUH 24 JAM, PEMANJANGAN EFEK PADA GANGGUAN FUNGSI HATI, INTERAKSI → CIMETIDIN DAN OMEPERAZOLE

LORAZEPAM

- ONSET KERJA INTERMEDIET, DENGAN WAKTU PARUH LEBIH 2 KALI DIBANDINGKAN DIAZEPAM
- *RECOVERY TIME* 6 KALI LEBIH LAMBAT DIBANDINGKAN DGN MIDAZOLAM
- DIREKOMENDASIKAN → SEDASI JANGKA PANJANG & AMNESIA ANTEROGRADE

BARBITURAT

- DIREKOMENDASIKAN → KEJANG REFRAKTER DAN TRAUMA KEPALA DENGAN PENINGKATAN TEKANAN INTRAKRANIAL BERAT
- TIDAK MEMILIKI EFEK ANALGESIA DAN TIDAK IDEAL UNTUK PROSEDUR DENGAN NYERI
- THIOPENTAL MEMILIKI ONSET YANG CEPAT DAN EFEK VASODILATASI DAN KRONOTROPIK NEGATIF

PROPOFOL

- ONSET KERJA, ELIMINASI DAN *RECOVERY* CEPAT → PEMERIKSAAN NEUROLOGIS BERULANG (TRAUMA KEPALA ATAU STATUS EPILEPTIKUS)
- PROSEDUR SINGKAT SEPERTI ENDOSKOPI DAN INTUBASI
- TIDAK MENGANDUNG ANALGESIA DAN MENIMBULKAN AMNESIA, PENGGUNAAN JANGKA PANJANG → *"PROPOFOL INFUSION SYNDROME"* (SYOK KARDIOGENIK DAN GANGGUAN METABOLIK)

CHLORAL HYDRATE

- SEDASI INTERVENSI SINGKAT → ECHO, RADIOGRAFI, AKAN TETAPI ONSET DAN LAMA KERJA SANGAT BERVARIASI
- DOSIS BERULANG → AKUMULASI METABOLIT → HIPERBILIRUBINEMIA DAN METABOLIK ASIDOSIS
- STUDI PADA 95 ANAK YG MNDPT 25-30 MG CHLORAL HYDRATE → CUKUP AMAN DGN *RECOVERY TIME* < 60 MENIT

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TABEL 1. KARAKTERISTIK SEDASI YANG SERING DIGUNAKAN PADA ANAK

Drug	Dose (mg/kg)	Onset (minutes)	Indication	Comments
Midazolam	OR, IR: 0.5-0.75 IN, SL: 0.2-0.5 IV: 0.2 INF: 1-10 µg/kg/min	2-3	Short procedures Prolonged MV	Tolerance and with drawal syndrome Lower dose in renal and liver failure Hypotension in bolus dose
Lorazepam	IV: Loading dose: 0.02-0.06 INF: 0.02-0.1 mg/kg/h	5-20	Prolonged MV Withdrawal syndrome	Limited clinical experience
Propofol	IV: Loading dose: 2-3 INF: 1-4 mg/kg/h	1-2	Short procedures Short MV	Propofol infusion syndrome Hypertriglyceridemia
Ketamine	IM: 3-5IV: Loading dose: 1-3 INF: 0.7-3 mg/kg/h	0.5-1	Short procedures Intubation in acute severe asthma	Releases endogenous catecholamines Not recommended in ICH
Etomidate	IV: 0.2-0.3	Immediate	Intubation with hemodynamic findings	Suprarenal failure
Thiopental	IV: Loading dose: 3-5 INF: 1-5 mg/kg/h	Immediate	Intubation in ICH	Negative inotrope Vasodilation
Dexmedetomidine	IV: Loading dose: 1 µg/kg INF: 0.2-0.75 µg/kg/h	2-5	Short procedures Short MV	Underdocumented in children Without respiratory depression
Clonidine	OR, IV: 1-4 µg/kg/6-8 h INF: 0.1-0.2 µg/kg/h	5-20	Prolonged MV Withdrawal syndrome	Hypertension in case of sudden withdrawal Without respiratory depression
Chloral hydrate	OR, IR: 25-75 mg/kg	5-20	Short procedures	Agitation and late disinhibition
Chlorpromazine	OR, IR: 0.5-1.5 every 6-8 h IV: 0.5 mg/kg		Agitation- Delirium	Extrapiramidal reactions

ICH = Intracranial hypertension; IM = intramuscular; IN = intranasal; INF = continuous infusion; IR = intrarectal; IV = intravenous; MV = mechanical ventilation; OR = oral route; SL = sublingual.

- MIDAZOLAM → SEDASI DAN AMNESIA YANG ADEKUAT, BIAYA ↓, MEMBUTUHKAN DUKUNGAN VENTILATOR DAN GEJALA PUTUS OBAT (*WITHDRAWAL SYND*)

- PROPOFOL ONSET LEBIH CEPAT →*WEANING* DARI VENTILATOR > CEPAT, → DEPRESI VASKULAR YG LEBIH BERAT SELAMA MASA INDUKSI, MAHAL

  → MIDAZOLAM PILIHAN PADA SEDASI KONTINYU, SEDANGKAN PROPOFOL PILIHAN PADA PROSEDUR SINGKAT

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- PADA PEMBERIAN BERSAMAAN DENGAN OPIAT, DOSIS MIDAZOLAM SEBAIKNYA DITURUNKAN 30% UNTUK MENCEGAH DEPRESI PERNAFASAN

- EFEKTIVITAS MIDAZOLAM DAN KETAMIN → ↓ KECEMASAN ANAK DAN ORANG TUA

- VENTILASI MEKANIK → KECEPATAN INFUS MIDAZOLAM DAPAT DISESUAIKAN 25% DARI DOSIS AWAL → EFEK YANG DIHARAPKAN

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ANALGESIA

- NYERI : RINGAN, SEDANG DAN BERAT

- NYERI RINGAN → ASPIRIN, ACETAMINOPHEN, IBUPROFEN (NON NARKOTIK) DAN KODEIN (NARKOTIK)

- NYERI SEDANG DAN BERAT :

- GOL. OPIOID (MORPHINE, PETHIDINE, FENTANYL, REMIFANTANIL, TRAMADOL)
- NSAIDS (KETOROLAC, IBUPROFEN, KETOPROFEN DAN DIKLOFENAC)
- GOL. NON OPIOID LAIN (KETAMIN, METAMIZOLE)

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- ACETAMINOPHEN → SSP , EFEK TERAPEUTIK PADA SEMUA KELOMPOK UMUR, TERMASUK BAYI PRETERM, EFEK SINERGIS DENGAN NSAIDs DAN KODEIN

- NSAIDS → EFEK ANALGETIK DAN ANTI INFLAMASI NYERI KRONIK & PASCAOPERASI

  → TIDAK MENYEBABKAN DEPRESI PERNAFASAN DAN SEDASI

- KOMBINASI DGN OPIOID → EFEK SINERGIS DGN DOSIS DAN EFEK SAMPING YANG ↓

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MORFIN

- EFEK SSP → 15 MENIT DAN DURASI 3-6 JAM, METABOLISME DI HATI, DAN BILA DIBERIKAN SECARA INTRAVENA → HIPOTENSI, EFEK VASODILATASI DAN PELEPASAN HISTAMIN

- NYERI YANG BERAT SEPERTI LUKA BAKAR, FRAKTUR ATAUPUN TRAUMA LAINNYA PEMBERIANNYA HENDAKNYA MEMPERHATIKAN STATUS DEHIDRASI PASIEN

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- PETHIDINE (MEPERIDINE) → > EFEKTIF, MEMILIKI ONSET > CEPAT DIBANDING MORFIN, PADA PEMBERIAN SECARA INTRAVENA DILAPORKAN TREMOR, DISORIENTASI DAN KEJANG

- FENTANYL (OPIOID SINTETIS) → (NYERI BERAT) ONSET KERJA CEPAT DAN DURASI SINGKAT JANGKA LAMA → TOLERANSI & AKUMULASI

  → PELEPASAN HISTAMIN (-) DAN STABILITAS HEMODINAMIK (+) → HIPOTENSI JARANG, ES. DEPRESSI NAFAS < 3 BLN (JARANG)

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- REMIFENTANYL MEMILIKI KOMBINASI EFEK SEDASI RISIKO AKUMULASI (-) , KEKURANGANNYA > MAHAL, TOLERANSI DAN HIPOTENSI → FENTANYL PILIHAN

- KETAMIN → EFEK ANALGESIA YANG KUAT, SEDASI, AMNESIA, DAN IMMOBILISASI SECARA CEPAT

  → REFLEK DAN TONUS OTOT JALAN NAFAS ATAS, SERTA PERNAFASAN SPONTAN → HIPERSALIVASI 11%, MUNTAH SAAT TERBANGUN 6% → ATROPIN ATAU GLYCOPYRROLATE

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- METAMIZOLE

  ANALGESIA NON OPIOID YANG PALING SERING DIGUNAKAN PADA NYERI SEDANG DAN BERAT, KOMBINASI DENGAN OPIOID ↑ EFEK DAN ↓ TOLERANSI, RISIKO → AGRANULOSITOSIS DAN APLASIA SUMSUM TULANG (SANGAT KECIL)

- TRAMADOL

  BEKERJA SENTRAL MENGHAMBAT AMBILAN SEROTONIN DAN ↓ EFEK AGONIS RESEPTOR. EFEK SAMPING ↓, DIHINDARI PADA PASIEN DGN KEJANG DAN TRAUMA KEPALA

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TABEL 2. KARAKTERISTIK ANALGESIK YANG SERING DIGUNAKAN PADA ANAK

Drug	Dose (mg/kg)	Onset (minutes)	Indication	Comments
Morphine	IV: 0.1-0.2 mg/kg/4-6 h INF: 10-40 µg/kg/h	20	Sedation and analgesia in MV Acute or chronic pain Pulmonary edema	Lower dose in renal or liver failure Releases histamine Nausea and vomiting
Fentanyl	IV: 1-3 µg/kg INF: 1-10 µg/kg/h	1-2	Short painful procedures Same as morphine	Prolonged clearance Better hemodynamic tolerance Thoracic rigidity after quick administration
Remifentanil	IV: 1 µg/kg INF: analgesic: 0.5-6 µg/kg/h Sedation: 6-12 µg/kg/h	1	Sedation and analgesia in MV Immediate postoperative period	Immediate clearance Better hemodynamic tolerance Thoracic rigidity after quick administration
Alfentanil	IV: 15-25 µg/kg in 60 min INF: 0.4-2 µg/kg/min	1-2	Short painful procedures	High-priced Not to be used in liver failure
Methadone	IV: 0.1-0.2 mg/kg/4-6 h	45	Treatment of withdrawal syndrome Chronic pain	Nausea and vomiting
Tramadol	IV: 1-2 mg/kg/4-6 h INF: 0.2-0.4 mg/kg/h	10	Acute pain	Good hemodynamic tolerance Less respiratory depression
Paracetamol	IV: 10-15 mg/kg/6 h	30	Moderate pain Hyperthermia	Central action Hepatotoxicity
Ketorolac	OR: 2 mg/kg/day every 6-8 h IV, IM: 0.2-1 mg/kg/6 h	30	Moderate to severe pain Anti-inflammatory drug	Gastrointestinal bleeding Nephrotoxicity
Metamizole	IV: 10-40 mg/kg/4-6 h INF: 4-6.6 mg/kg/h	15-30	Moderate to severe pain Hyperthermia	Synergistic effect with opioids Hypotension in case of quick infusion

IM = intramuscular; INF = continuous infusion; IR = intrarectal; IV = intravenous; MV: = mechanical ventilation; OR = oral route.

MONITORING

- PEMANTAUAN DAN EVALUASI → SEBELUM, SELAMA DAN SETELAH PEMBERIAN SEDASI DAN ANALGESIA
- SEBELUM → STATUS KESEHATAN, KETERSEDIAAN PERANGKAT *EMERGENCY* DAN MONITORING, KLINISI TERLATIH DAN REKAM MEDIS
- SELAMA PROSEDUR → TERHADAP PROTOKOL YANG DIBERIKAN, TANDA VITAL, TINGKAT SEDASI, SATURASI OKSIGEN, ELEKTROKARDIOGRAM, DAN EVALUASI LABORATORIUM
- SETELAH PROSEDUR → *RECOVERY* ; SEDASI JANGKA PANJANG PERLU DIEVALUASI KEMUNGKINAN TIMBULNYA *WITHDRAWAL SYNDROME*

MONITORING ...

- PENDEKATAN YANG SISTEMATIS → SUATU AKRONIM YANG SECARA UMUM TELAH DIGUNAKAN DALAM PERENCANAAN DAN PERSIAPAN PROSEDUR → S O A P M E

- S (SUCTION) : UKURAN DAN FUNGSI
- O (OXYGEN) : ADEKUAT DARI SUPLAI OKSIGEN
- A (AIRWAY) : UKURAN DAN FUNGSI : *NASO/OROPHARYNGEAL AIRWAY*, LARINGOSKOP,PIPA ENDOTRAKEAL, *BAG-VALVE MASK*
- P (PHARMACY) : OBAT-OBATAN BANTUAN DASAR PADA KEADAAN DARURAT TERMASUK ANTAGONIS
- M (MONITORS) : PULSE OXIMETER, PENGUKUR TD, ECG
- E (EQUIPMENT): ALAT YANG DIBUTUHKAN PADA KONDISI TERTENTU (MISALNYA DEFIBRILATOR)

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Neuromuscular blocking agents

- Facilitate endotracheal intubation & controlled mechanical ventilation
- No sedative, hypnotic or analgesia side effects
- depolarizing or nondepolarizing
  → depending their effect on the motor end-plate
- Increased potential for respiratory inadequency from residual neuromuscular blockade in infanys, routinely antagonize nondepolarizing relaxants
  → neostigmin 70 µg/kg

- Antibiotics, hypotension, hypothermia, acidosis or hypocalcemia can prolong or potentiate neuromuscular blockade from nondepolarizing relaxants

- Hypothermia, deep sedation, or narcosis can also lead to respiratory depression in infants

Depolarizing

Succinylcholine

- a rapid-acting and ultrashort-duration depolarizing muscle relaxant
- useful when given as a bolus to facilitate endotracheal intubation
- side effects : dysrhytmias, increased intraocular pressure, prolonged apnea, injured muscle membranes with associated hyperkalemia, association with masseter spasm & malignant hyperthermia, and death

- Dose
  infants : 1 mg/kg ≈ 0,5 mg/kg in children age 6-8 years

- Complete neuromuscular blockade develops in children given 1 mg/kg

Non depolarizing

Elimination routes of muscle relaxants

Agent	Metabolism in plasma	Hepatobiliary uptake & metabolism	Renal excretion
Mivacurium	XX		
Atracurium	XX		
Cisatracurium	XX		
Vecuronium		XX	X
Rocuronium		XX	X
Pancuronium		XX	X
Pipecuronium		XX	X
Doxacurium			XX

XX : major route ; X : alternative route

Long acting agents :

- d-tubocurarine
  → no longer available
- Pancuronium
- Pipecuronium

Intermediate acting agents :

- Atracurium
- Vecuronium
- Rocuronium

Short acting agents :

-Mivacurium

TERIMA KASIH

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Figure 1 Continuum of Sedation

Level of Sedation	Definition
Minimal Sedation (Anxiolysis)	• Drug-induced state • Patients respond normally to verbal commands • Cognitive function and co-ordination may be impaired • Ventilatory and cardiovascular functions are unaffected
Moderate Sedation/Analgesia (Conscious Sedation)	• Drug-induced depression of consciousness • Patients respond purposefully to verbal commands, either alone or accompanied by light tactile stimulation • No interventions are required to maintain a patent airway • Spontaneous ventilation is adequate • Cardiovascular function is usually maintained
Deep Sedation/Analgesia	• Drug-induced depression of consciousness • Patients cannot be easily arouse • Patients respond purposefully following repeated or painful stimulation • The ability to independently maintain ventilatory function may be impaired • Patients may require assistance in maintaining a patent airway • Spontaneous ventilation may be inadequate • Cardiovascular function is usually maintained
General Anaesthesia	• Drug-induced loss of consciousness • Patients are not arousable even by mild painful stimulation • Ability to independently maintain ventilatory function is often impaired • Patients often require assistance to maintain a patent airway • Positive pressure ventilation may be required due to depressed spontaneous ventilation and drug-induced depression of neuromuscular function • Cardiovascular function may be impaired

[2] American Academy of Pediatrics. (1992). "Guidelines for Monitoring and Management of Pediatric Patients During and After Sedation For Diagnostic and Therapeutic Procedures". Pediatrics, 89 (6), 1110-1115.
American Society of Anesthesiology website: http://www.asahq.org/Standards/20.htm

PAIN RATING SCALE

Face 0 is very happy because he or she doesn't hurt at all.

Face 1 hurts just a little bit.

Face 2 hurts a little more.

Face 3 hurts even more.

Face 4 hurts a whole lot.

Face 5 hurts as much as you can imagine, although you don't have to be crying to feel this bad.

Table 3

Ramsay scale

Level	Characteristics
1	Patient awake, anxious, agitated, or restless
2	Patient awake, cooperative, orientated and tranquil
3	Patient drowsy, with response to commands
4	Patient asleep, brisk response to glabella tap or loud auditory stimulus
5	Patient asleep, sluggish response to stimulus
6	Patient has no response to firm nail-bed pressure or other noxious stimuli

COMFORT Scale (page 1 of 2)

	DATE/TIME						
ALERTNESS	1 - Deeply asleep 2 - Lightly asleep 3 - Drowsy 4 - Fully awake and alert 5 - Hyper alert						
CALMNESS	1 - Calm 2 - Slightly anxious 3 - Anxious 4 - Very anxious 5 - Panicky						
RESPIRATORY DISTRESS	1 - No coughing and no spontaneous respiration 2 - Spontaneous respiration with little or no response to ventilation 3 - Occasional cough or resistance to ventilation 4 - Actively breathes against ventilator or coughs regularly 5 - Fights ventilator; coughing or choking						
CRYING	1 - Quiet breathing, no crying 2 - Sobbing or gasping 3 - Moaning 4 - Crying 5 - Screaming						
PHYSICAL MOVEMENT	1 - No movement 2 - Occasional, slight movement 3 - Frequent, slight movements 4 - Vigorous movement 5 - Vigorous movements including torso and head						

MUSCLE TONE	1 - Muscles totally relaxed; no muscle tone 2 - Reduced muscle tone 3 - Normal muscle tone 4 - Increased muscle tone and flexion of fingers and toes 5 - Extreme muscle rigidity and flexion of fingers and toes						
FACIAL TENSION	1 - Facial muscles totally relaxed 2 - Facial muscle tone normal; no facial muscle tension evident 3 - Tension evident in some facial muscles 4 - Tension evident throughout facial muscles 5 - Facial muscles contorted and grimacing						
BLOOD PRESSURE (MAP) BASELINE	1 - Blood pressure below baseline 2 - Blood pressure consistently at baseline 3 - Infrequent elevations of 15% or more above baseline (1-3 during 2 minutes observation) 4 - Frequent elevations of 15% or more above baseline (> 3 during 2 minutes observation) 5 - Sustained elevations of 15% or more						
HEART RATE BASELINE	1 - Heart rate below baseline 2 - Heart rate consistently at baseline 3 - Infrequent elevations of 15% or more above baseline (1-3 during 2 minutes observation) 4 - Frequent elevations of 15% or more above baseline (> 3 during 2 minutes observation) **5 -** Sustained elevations of 15% or more						
	TOTAL SCORE						

Please attach patient label here

DATE AND TIME IN HOURS

SYSTEM	SIGNS & SYMPTOMS	SCORE											
CENTRAL NERVOUS SYSTEM DISTURBANCES	High-Pitched Cry	2											
	Continuous High-Pitched Cry	3											
	Sleeps < 1 hour after feeding	3											
	Sleeps < 2 hours after feeding	2											
	Sleeps < 3 hours after feeding	1											
	Mild Tremors Disturbed	1											
	Mod-Severe Tremors Disturbed	2											
	Mild Tremors Undisturbed	3											
	Mod-Severe Tremors Undisturbed	4											
	Increased Muscle Town **(= Tone)**	2											
	Excoriation (Specify Area)	1											
	Myoclonic Jerks	3											
	Generalised Convulsions	5											
METABOLIC/VASOMOTOR/ RESPIRATORY DISTURBANCES	Sweating	1											
	Fever (37.5° - 38.0°C)	1											
	Fever (38.4°C and higher)	2											
	Frequent Yawning (>3-4 times)	1											
	Nasal Stuffiness	1											
	Sneezing (>3-4 times)	1											
	Nasal Flaring	2											
	Respiratory Rate > 60/min	1											
	Respiratory Rate > 60/min with Retractions	2											
GASTROINTESTINAL DISTURBANCES	Excessive Sucking	1											
	Poor Feeding	2											
	Regurgitation	2											
	Projectile Vomiting	3											
	Loose Stools	2											
	Watery Stools	3											
	Total Score												
	Scorer's Initials												

NEONATAL SCORING CHART

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