

**THESIS**

**ANALGESIC PROFILE IN INTENSIVE OBSERVATION ROOM (*RUANG  
OBSERVASI INTENSIF/ROI*) RSUD DR. SOETOMO SURABAYA:  
A RETROSPECTIVE STUDY JANUARY 2020-JUNE 2020**



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**INTERNATIONAL CLASS MEDICAL PROGRAM  
MEDICAL FACULTY  
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SURABAYA  
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OBSERVASI INTENSIF/ROI) RSUD DR. SOETOMO SURABAYA:  
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This is to fulfill the requirement of the research module  
Medical Faculty of Universitas Airlangga

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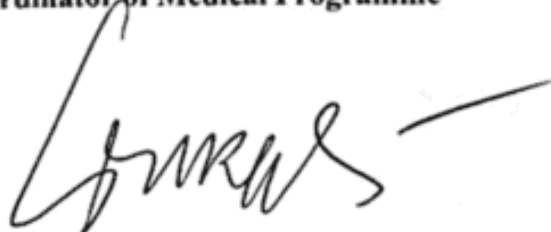
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**A RETROSPECTIVE STUDY JANUARY 2020-JUNE 2020**

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## LETTER OF GRATITUDE

I give thanks to God Almighty for His grace and guidance, which enabled the author to finish the study entitled Analgesic Profile in Intensive Observation Room (*Ruang Observasi Intensif/ROI*) RSUD Dr. Soetomo Surabaya: A Retrospective Study January 2020-June 2020. Thanks to the assistance of many people, this thesis was completed efficiently and effectively. In light of this, I would like to express my gratitude to:

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The author understands that the writing of this thesis still needs improvement, therefore the author expects positive comments and constructive criticisms from the readers. With this thesis, the author hopes that it can provide benefits for all parties in need.

Surabaya, 18 August 2022

Bunga Priscilla Rotua Manurung

**RINGKASAN****ANALGESIC PROFILE IN INTENSIVE OBSERVATION ROOM (*RUANG OBSERVASI INTENSIF/ROD*) RSUD DR. SOETOMO SURABAYA:  
A RETROSPECTIVE STUDY JANUARY 2020-JUNE 2020**

Bunga Priscilla Rotua Manurung

Nyeri adalah sensasi sensorik dan emosional yang tidak menyenangkan yang terkait dengan, atau menyerupai, cedera jaringan yang nyata atau mungkin (Raja et al., 2020). Ini adalah salah satu alasan paling umum untuk konsultasi fisik dan dapat menyebabkan gangguan kualitas hidup seseorang (Breivik et al., 2008). Pengaruh nyeri terhadap kualitas hidup manusia sangat signifikan, baik secara fisik maupun psikologis, sehingga setiap pengukuran dianggap dapat meredakan nyeri. Obat nyeri sederhana efektif pada 20% -70% kasus (Moore et al., 2015).

Terlepas dari kenyataan bahwa penghilang rasa sakit adalah hak mendasar, sebagian besar pasien perawatan kritis akan menderita rasa sakit di beberapa titik selama mereka tinggal di ICU, terutama ketika pakaian, mengubah posisi, dan bahkan istirahat, dan ini bisa menjadi sumber utama dari stres. Karena perubahan tingkat kesadaran, ventilasi mekanis, atau dosis besar obat penenang atau relaksan otot, sebagian besar pasien perawatan kritis mungkin tidak dapat melaporkan sendiri rasa sakit mereka secara vokal atau dengan sinyal lain. Pada pasien ICU medis dan bedah, kejadian nyeri yang cukup besar masih 50% atau lebih besar (de Jong et al., 2013).

Opioid adalah analgesik utama yang digunakan di ICU karena potensinya, bersamaan dengan sifat sedatif dan ansiolitik ringan, dan kemampuannya untuk diberikan melalui berbagai rute. Morfin, fentanil, dan hidromorfon adalah opioid yang paling umum diberikan di ICU (Marino dan Sutin, 2007). Parasetamol, NSAID (obat anti inflamasi non steroid), Ketamine, Clonidine, dan Dexmedetomidine adalah contoh analgesik non-opioid yang rutin digunakan (Hariharan dan Garg, 2017).

Efek penggunaan analgesik dalam mengatasi nyeri sangat besar sehingga digunakan secara luas di seluruh dunia. Conaghan pada *A Turbulent Decade for NSAIDs: Update on Current Concepts of Classification, Epidemiology, Comparative Efficacy, and Toxicity*, 2011, menyebutkan bahwa NSAID adalah salah satu obat yang paling umum digunakan di seluruh dunia, dengan lebih dari 30 juta orang meminumnya setiap hari. Setiap tahun, lebih dari 111 juta resep ditulis untuk NSAID di AS, terhitung sekitar 60% dari industri analgesik over-the-counter (OTC) sementara opioid digunakan oleh sekitar 58 juta orang di seluruh dunia (WHO, 2018).

Meskipun jumlah pengguna opioid di dunia sangat besar, namun Indonesia masih menjadi salah satu pengguna terendah di dunia. Dalam penggunaan morfin, suatu bentuk opioid, Indonesia hanya berada di angka 0,054mg/kapita dibandingkan dengan negara berkembang seperti Amerika Serikat, Kanada dan Denmark yang mengonsumsi 50 mg/kapita pada tahun 2009. Kurangnya penggunaan opioid pada tahun 2009 dapat dikaitkan dengan sejumlah faktor. Ketidakmampuan profesional medis dalam menilai rasa sakit, keengganan pasien untuk mengartikulasikan tingkat penderitaan mereka, keengganan dokter dan pasien untuk menggunakan opioid karena takut kecanduan, dan kurangnya kemampuan dan pemahaman di antara petugas kesehatan hanyalah beberapa contoh. dari hambatan yang signifikan. (Setiabudi dkk., 2015).

Meskipun bermanfaat, analgesik dapat menyebabkan efek merugikan jika tidak digunakan sesuai dengan indikasi dan peraturannya. Itu juga datang bersama dengan efek samping, kontraindikasi, dan toksisitas. NSAID memiliki efek samping yang terkenal yang mempengaruhi mukosa lambung, sistem ginjal, sistem kardiovaskular, sistem hati, dan sistem hematologi (Ghlichloo dan Gerriets, 2021). Obat opioid menghasilkan spektrum efek samping yang luas untuk distribusi reseptor opioid baik di dalam maupun di luar sistem saraf. Efek samping tersebut antara lain disforia, euforia, sedasi, depresi pernafasan, konstipasi, penekanan

sistem endokrin, gangguan kardiovaskular, konvulsi, mual, muntah, pruritus, dan miosis (Cohen, Ruth and Preuss, 2021).

Dokter harus lebih memperhatikan kemungkinan dampak jangka panjang, dan mereka harus menggunakan taktik yang mengoptimalkan manfaat sambil membatasi risiko. Penilaian yang sering untuk nyeri, kecemasan, dan agitasi menggunakan skala yang dapat direproduksi; terapi kombinasi yang menggabungkan opioid dan obat penenang; dan, yang paling penting, komunikasi yang cermat di antara anggota tim, dengan pengakuan khusus bahwa perawat di samping tempat tidur harus diberdayakan untuk memasang penilaian dengan manipulasi obat (Schweickert dan Kress, 2008).

Penelitian ini bertujuan untuk mendapatkan profil analgesik dan menganalisis indikasi, efek samping, kontraindikasi, dan toksisitas pada profil analgesik yang digunakan di Ruang Observasi Intensif (ROI/Ruang Observasi Intensif) RSUD Dr. Soetomo Surabaya.

Penelitian ini merupakan jenis penelitian deskriptif retrospektif pada pasien yang dirawat di Ruang Observasi Intensif (ROI) RSUD Dr. Soetomo Surabaya dan dilaksanakan pada bulan Juli 2021-Mei 2022.

Kesimpulan dari penelitian ini adalah pada periode Januari-Juni 2020, 529 dari 537 pasien di Ruang Observasi Intensif (ROI) RSUD Dr. Soetomo menjalani tindakan operasi. 8 pasien menjalani prosedur non-operasi. Ada penurunan nyeri yang signifikan pada pasien setelah pemberian analgesik. Jumlah total obat yang diberikan adalah 833. Analgesik non-opioid memiliki jumlah total 602, analgesik opioid memiliki jumlah total 172 sedangkan jumlah adjuvant dan obat penenang masing-masing adalah 53 dan 6. Profil analgesik didapatkan Metamizole sebagai jumlah tertinggi diikuti oleh Parasetamol, Tramadol, Fentanyl secara berurutan. Ada dua jenis adjuvant yang digunakan yang terdiri dari antikonvulsan yaitu Phenytoin dan Phenobarbital. Ada dua jenis obat penenang yang dilaporkan digunakan: Midazolam dan Ropivacaine. Rute pemberian yang tersering di Ruang Observasi Intensif

adalah intravena, diikuti oleh pemberian oral, dan rute yang jarang digunakan adalah melalui intratekal. Dosis obat yang diberikan dilaporkan masih dalam batas normal meskipun bervariasi sesuai indikasinya. Sebagian besar lama pemberian obat berkisar 1-3 hari, meskipun lama rawat inap di Ruang Observasi Intensif tidak berarti sama dengan lama pemberian analgesik. Dari 537 sampel, 52% merupakan pemberian obat tunggal sedangkan sisanya merupakan kombinasi. 38 kombinasi dilaporkan dengan Metamizole dan Paracetamol sebagai kombinasi paling populer.

**ABSTRAK****ANALGESIC PROFILE IN INTENSIVE OBSERVATION ROOM (RUANG  
OBSERVASI INTENSIF/ROI) RSUD DR. SOETOMO SURABAYA:  
A RETROSPECTIVE STUDY JANUARY 2020-JUNE 2020**

Bunga Priscilla Rotua Manurung

**Tujuan:**

*Untuk mendapatkan profil analgesik yang digunakan di Ruang Observasi Intensif RSUD Dr. Soetomo Surabaya.*

**Desain:**

*Penelitian ini merupakan jenis penelitian deskriptif retrospektif*

**Metode:**

*Dalam penelitian ini, 537 pasien Ruang Observasi Intensif RSUD Dr. Soetomo Surabaya dikumpulkan melalui teknik consecutive sampling dalam kurun waktu 6 bulan terhitung mulai Januari 2020-Juni 2020. Subyek yang terkumpul kemudian dicatat dalam kategori: prosedur yang dilakukan, peringkat skala nyeri, jumlah total obat yang diberikan, dosis, lama rawat dan kombinasi.*

**Hasil:**

*Dari penelitian ini didapatkan bahwa 529 dari 537 subjek di Ruang Observasi Intensif (ROI) RSUD Dr. Soetomo Surabaya merupakan pasien yang menjalani tindakan operatif. Sisanya adalah pasien yang menjalani prosedur non operasi yang berjumlah 8 orang. Dari 205 sampel penggunaan WBFS, terdapat 25 pasien tidak merasakan nyeri sama sekali, 134 pasien merasakan nyeri ringan, 43 pasien mengalami nyeri sedang dan 3 pasien mengalami nyeri berat. Setelah pemberian analgesik, jumlah pasien yang tidak merasakan nyeri menjadi 132 orang, sedangkan pasien yang mengalami nyeri ringan berkurang menjadi 65 orang, begitu juga dengan jumlah pasien yang mengalami nyeri sedang juga berkurang menjadi 8 orang, dan tidak ada pasien yang mengalami nyeri berat. Pada 261 pasien yang menggunakan*

*ventilator, 180 pasien menyatakan tidak nyeri sedangkan 59 pasien menyatakan nyeri ringan. 18 pasien dilaporkan mengalami nyeri sedang, sedangkan 4 pasien menyatakan nyeri berat. Jumlah obat yang diberikan pada pasien di Ruang Observasi Intensif (ROI) RSUD Dr. Soetomo Surabaya adalah 833, yang sebagian besar merupakan analgesik non-opioid dengan jumlah total 602. analgesik opioid menempati urutan kedua dengan jumlah total 172 sedangkan jumlah adjuvant dan obat penenang masing-masing adalah 53 dan 8.*

*Profil analgesik didominasi oleh penggunaan Metamizole dengan jumlah 370, sedangkan Parasetamol berada di urutan kedua dengan 134 kali penggunaan. Ketorolac, Tramadol, dan Fentanyl memiliki jumlah pemakaian yang hampir sama dengan jumlah masing-masing 90, 82 dan 76. Morphine hanya digunakan sebanyak 14 kali, sedangkan Dexmedetomidine digunakan 6 kali, dan yang paling sedikit digunakan adalah Ketamine dengan 2 kali penggunaan.*

*Adjuvant analgesik hanya terdiri dari dua obat, keduanya termasuk dalam kelompok antikonvulsan. Phenytoin paling banyak digunakan dengan jumlah 51 sedangkan Phenobarbital hanya digunakan dua kali.*

*Ruang Observasi Intensif (Ruang Observasi Intensif/ROI) RSUD Dr. Soetomo lebih menyukai jalur intravena yang digunakan pada 814 pemberian obat sedangkan jalur oral digunakan sebanyak 13 kali. Rute intratekal adalah yang paling sedikit digunakan dengan hanya 6 administrasi.*

*Dari total 833 obat yang diberikan dalam kurun waktu 6 bulan di Ruang Observasi Intensif (ROI), sebagian besar durasinya berlangsung selama 1-3 hari. 85 sampel obat tercatat untuk diberikan selama 4-6 hari sedangkan 9 obat diberikan selama 7 hari dan lebih. Jumlah pemberian obat tunggal sedikit lebih banyak daripada pemberian obat kombinasi dengan jumlah 283 hitungan sedangkan pemberian obat kombinasi berjumlah 254. Kombinasi obat itu sendiri bermacam-macam, dan dari data yang diperoleh terdapat 38 kombinasi obat.*

**Kesimpulan:**

*Pada periode Januari-Juni 2020, 529 dari 537 pasien di Ruang Observasi Intensif (ROI) RSUD Dr. Soetomo menjalani tindakan operasi. 8 pasien menjalani prosedur non-operasi. Ada penurunan nyeri yang signifikan pada pasien setelah pemberian analgesik. Jumlah total obat yang diberikan adalah 833. Analgesik non-opioid memiliki jumlah total 602, analgesik opioid memiliki jumlah total 172 sedangkan jumlah adjuvant dan obat penenang masing-masing adalah 53 dan 8. Profil analgesik didapatkan Metamizole sebagai jumlah tertinggi diikuti oleh Parasetamol, Tramadol, Fentanyl secara berurutan. Ada dua jenis adjuvant yang digunakan yang terdiri dari antikonvulsan yaitu Phenytoin dan Phenobarbital. Ada dua jenis obat penenang yang dilaporkan digunakan: Midazolam dan Ropivacaine. Rute pemberian yang tersering di Ruang Observasi Intensif adalah intravena, diikuti oleh pemberian oral, dan rute yang jarang digunakan adalah melalui intratekal. Dosis obat yang diberikan dilaporkan masih dalam kisaran meskipun bervariasi sesuai indikasinya. Sebagian besar lama pemberian obat berkisar 1-3 hari, meskipun lama rawat inap di Ruang Observasi Intensif tidak berarti sama dengan lama pemberian analgesik. Dari 538 sampel, 52% merupakan pemberian obat tunggal sedangkan sisanya 48% merupakan kombinasi. 38 kombinasi dilaporkan dengan Metamizole dan Paracetamol sebagai kombinasi paling populer.*

**ABSTRACT****ANALGESIC PROFILE IN INTENSIVE OBSERVATION ROOM (RUANG OBSERVASI INTENSIF/ROI) RSUD DR. SOETOMO SURABAYA:  
A RETROSPECTIVE STUDY JANUARY 2020-JUNE 2020**

Bunga Priscilla Rotua Manurung

**Aim:**

*To obtain the analgesic profile used in the Intensive Observation Ward (ROI/Ruang Observasi Intensif) at RSUD Dr. Soetomo Surabaya.*

**Design:**

*This research is a type of retrospective descriptive study*

**Method:**

*In this study, 537 patients of Intensive Observation Ward (ROI/Ruang Observasi Intensif) at RSUD Dr. Soetomo Surabaya collected through consecutive sampling technique in within a period of 6 months starting from January 2020-June 2020. The collected subjects were then recorded within the categories such as: carried out procedure, pain scale ratings, total count of drugs administered, dosage, length of stay and combinations.*

**Result:**

*From this study, we found that 529 of the 537 subjects in the Intensive Observation Room (Ruang Observasi Intensif/ROI) RSUD Dr. Soetomo Surabaya were patients who underwent operative procedures. The rest were patients who underwent non-operative procedures, which amounted to 8 people. A total of 205 sample of the usage of WBFS were obtained in which 25 patients felt no pain at all, 134 patients felt mild pain, 43 patients underwent moderate pain and 3 patients with severe pain. After the administration of analgesics, the number of patients who felt no pain turns into 132, while patients who underwent mild pain decreases into 65, just as the total patients who underwent moderate pain also decrease into 8, and no patient recorded*

*with severe pain. On 261 patients that were on ventilator, 180 patients expressed no pain while 59 patients expressed mild discomfort. 18 patients were reported having moderate pain, while 4 patients had expressed severe pain.*

*The total count of drugs administered on patients in Intensive Observation Room (Ruang Observasi Intensif/ROI) RSUD Dr. Soetomo Surabaya is 833, in which the majority of it are non-opioid drugs that has a total count of 594. Opioid drugs came second with the total count of 172 while the adjuvants and sedatives count are 53 and 14 respectively, making them the lowest of the counts.*

*The analgesic profile dominated by the usage of Metamizole with the total count of 370, while Paracetamol came second with 134 total administered. Ketorolac, Tramadol, and Fentanyl had almost similar count of usage with the total count of 90, 82 and 76 respectively. The use of Morphine is only 14 times, meanwhile Dexmedetomidine only used 6 times, and the least used one is Ketamine with only 2 usages.*

*Analgesic adjuvants consists of only two drugs, both of them are in the group of anticonvulsants. Phenytoin is used the most with the total count of 51 while Phenobarbital only used two times. Intensive Observation Room (Ruang Observasi Intensif/ROI) RSUD Dr. Soetomo favored the intravenous route that was used in 814 of drugs administration while oral route was used in 13 administrations. Intrathecal route is the least used with only 6 administrations.*

*From the total count of 833 drug administered in the span of 6 months in Intensive Observation Room (Ruang Observasi Intensif/ROI), the majority of the duration lasted for 1-3 days. 85 drug samples recorded to be administered for 4-6 days while 9 drugs administered for 7 days and more. The amount of single drug administration is slightly more frequent than the administration of combination drugs with the total of 283 count while the combination drugs administration has the total count of 254. The combination of the drugs itself are various, and from the data obtained, there are 38 combinations of drugs.*

**Conclusion:**

*In the span of January-June 2020, 529 out of 537 patients in Intensive Observation Room (Ruang Observasi Intensif/ROI) RSUD Dr. Soetomo underwent operative procedure. 13 patients underwent non-operative procedure. There is significant decrease of pain on patients after the administration of analgesics. Total count of drugs administered is 833. Non-opioid analgesic has a total count of 602, opioid analgesic has a total count of 172 while the adjuvant and sedative count are 53 and 8 respectively. The analgesic profile reported has Metamizole as the highest count followed by Paracetamol, Tramadol, Fentanyl, and respectively. There are two kinds of adjuvant reported being used that consist of both anti-convulsant namely Phenytoin and Phenobarbital. There are two kinds of sedatives reported being used: Midazolam and Ropivacaine. Route of administration favored in the Intensive Observation Room is intravenous, followed by oral administration, and the least favored route via intrathecal. Dosages of drugs administered reported still within the range although it varies in accordance to its indication. The majority of duration on drug administration is around 1-3 days, though the length of stay in the Intensive Observation Room is not equivalent with the duration of analgesic administration. Out of 538 samples, 52% of it is single drug administration while the rest 48% is combination. 38 combinations reported with Metamizole and Paracetamol as the most popular combination.*

**Keywords:**

*Analgesic Profile, Intensive Care Unit*

## TABLE OF CONTENTS

|                                                                |      |
|----------------------------------------------------------------|------|
| Front cover.....                                               | i    |
| Inside cover .....                                             | ii   |
| Approval sheet.....                                            | iii  |
| Statement of Originality .....                                 | iv   |
| Note of Gratitude.....                                         | v    |
| Ringkasan .....                                                | vii  |
| Abstrak .....                                                  | xi   |
| Abstract .....                                                 | xiv  |
| TABLE OF CONTENT .....                                         | xvii |
| LIST OF TABLES .....                                           | xx   |
| LIST OF FIGURES.....                                           | xxi  |
| LIST OF ATTACHMENT .....                                       | xxii |
| LIST OF ABBREVIATION .....                                     | 1    |
| CHAPTER 1 INTRODUCTION.....                                    | 1    |
| 1.1. Background.....                                           | 3    |
| 1.2. Problem Formulation .....                                 | 4    |
| 1.3. Research Objectives.....                                  | 4    |
| 1.3.1. General Objective .....                                 | 4    |
| 1.3.2. Specific Objective.....                                 | 4    |
| 1.4. Research Benefits .....                                   | 4    |
| 1.4.1. Theoretical Benefit .....                               | 4    |
| 1.4.2. Practical Benefit .....                                 | 4    |
| CHAPTER 2 LITERATURE REVIEW.....                               | 5    |
| 2.1. Analgesic .....                                           | 5    |
| 2.1.1. Definition of Analgesic .....                           | 5    |
| 2.1.2. Classification of Analgesic .....                       | 5    |
| 2.1.2.1. Non-Opioid Analgesic .....                            | 5    |
| 2.1.2.2. Opioid Analgesic .....                                | 6    |
| 2.1.3. Pharmacokinetic and Pharmacodynamic of Analgesics ..... | 7    |
| 2.1.3.1. Salicylates .....                                     | 7    |
| 2.1.3.2. Enolic Acid Derivates.....                            | 8    |
| 2.1.3.3. Propionic Acid Derivates.....                         | 8    |
| 2.1.3.3.1. Flurbiprofen .....                                  | 8    |
| 2.1.3.3.2. Ketoprofen .....                                    | 9    |
| 2.1.3.3.3. Oxaprozin .....                                     | 9    |
| 2.1.3.3.4. Naproxen .....                                      | 9    |
| 2.1.3.4. Phenylpropionic Acid Derivates.....                   | 10   |
| 2.1.3.5. Acetic Acid Derivates.....                            | 10   |
| 2.1.3.5.1. Indomethacin .....                                  | 10   |
| 2.1.3.5.2. Ketorolac .....                                     | 11   |
| 2.1.3.5.3. Diclofenac.....                                     | 11   |
| 2.1.3.5.4. Tolmetin.....                                       | 11   |
| 2.1.3.5.5. Sulindac .....                                      | 12   |
| 2.1.3.5.6. Nabumeton.....                                      | 12   |
| 2.1.3.6. COX-2 Inhibitors .....                                | 12   |

|                                                                        |    |
|------------------------------------------------------------------------|----|
| 2.1.3.6.1. Celecoxib .....                                             | 13 |
| 2.1.3.6.2. Meloxicam .....                                             | 13 |
| 2.1.3.7. Acetaminophen .....                                           | 13 |
| 2.1.3.8. Strong Agonist Opioids .....                                  | 14 |
| 2.1.3.8.1. Phenanthrene .....                                          | 14 |
| 2.1.3.8.2. Phenylthylamine .....                                       | 14 |
| 2.1.3.8.3. Phenylpiperidine .....                                      | 15 |
| 2.1.3.9. Partial Agonist Opioids .....                                 | 15 |
| 2.1.3.10. Mixed Agonist-Antagonist Opioids.....                        | 16 |
| 2.1.3.11. Opioid for Moderate Pain .....                               | 17 |
| 2.1.3.11.1. Tramadol.....                                              | 17 |
| 2.1.3.11.2. Tapentadol .....                                           | 17 |
| 2.1.4. Indication and Contraindication of Analgesics .....             | 18 |
| 2.1.5. Adverse Effect and Toxicity of Analgesics .....                 | 27 |
| 2.1.5.1. Adverse Effects and Toxicity of NSAIDs .....                  | 27 |
| 2.1.5.2. Adverse Effects and Toxicity of Acetaminophen.....            | 29 |
| 2.1.5.3. Adverse Effects and Toxicity of Opioid Analgesics .....       | 31 |
| 2.1.6. Opioid Dependency and Addiction .....                           | 32 |
| 2.1.7. Dose and Route of Administration for Analgesic.....             | 33 |
| 2.2. Adjuvant Analgesics .....                                         | 34 |
| 2.2.1. Antidepressants.....                                            | 35 |
| 2.2.2. Anti-Epileptic .....                                            | 36 |
| 2.2.3. Corticosteroid .....                                            | 36 |
| 2.2.4. $\alpha 2$ Adrenergic Agonist .....                             | 37 |
| 2.2.5. NMDA Receptor Antagonist .....                                  | 38 |
| 2.2.6. GABA Antagonist .....                                           | 39 |
| 2.2.7. Local Anaesthetics.....                                         | 39 |
| 2.2.8. Benzodiazepines .....                                           | 40 |
| 2.2.9. Conotoxins.....                                                 | 40 |
| 2.2.10. Dose and Route of Administration for Adjuvant Analgesics ..... | 41 |
| 2.3. Analgesic Combination .....                                       | 41 |
| 2.3.1. Examples of Analgesic Combination .....                         | 43 |
| 2.3.2. Efficacy of Analgesic Combination .....                         | 45 |
| 2.3.3. Analgesic-Sedative Combination .....                            | 46 |
| 2.4. Analgesic in Intensive Care Unit .....                            | 47 |
| 2.5. Measuring Pain Scale .....                                        | 49 |
| 2.5.1. Critical Care Pain Observation Tool (CPOT).....                 | 50 |
| 2.5.2. Behavioral Pain Scale (BPS) .....                               | 51 |
| 2.5.3. Wong-Baker Faces Pain Rating Scale .....                        | 52 |
| CHAPTER 3 CONCEPTUAL FRAMEWORK .....                                   | 54 |
| 3.1. Conceptual Framework.....                                         | 54 |
| 3.2. Conceptual Framework Explanation .....                            | 55 |
| CHAPTER 4 METHODOLOGY .....                                            | 57 |
| 4.1. Research design .....                                             | 57 |
| 4.2. Population and sample .....                                       | 57 |
| 4.2.1. Inclusion Criteria .....                                        | 57 |
| 4.2.2. Exclusion Criteria .....                                        | 57 |
| 4.2.3. Sample Size .....                                               | 57 |

|                                                                                                                                |    |
|--------------------------------------------------------------------------------------------------------------------------------|----|
| 4.2.4. Sampling Technique .....                                                                                                | 57 |
| 4.3. Research Variables and Operational Definition .....                                                                       | 57 |
| 4.3.1. Research Variables .....                                                                                                | 57 |
| 4.3.2. Operational Definition .....                                                                                            | 59 |
| 4.4. Research Materials.....                                                                                                   | 59 |
| 4.5. Research Instruments .....                                                                                                | 59 |
| 4.6. Time and location of Research .....                                                                                       | 59 |
| 4.6.1. Time of Research .....                                                                                                  | 59 |
| 4.6.2. Location of Research .....                                                                                              | 59 |
| 4.7. Data Collecting Procedure .....                                                                                           | 59 |
| 4.8. Data Processing and Analysis Technique .....                                                                              | 59 |
| 4.9. Ethical Aspect of Research .....                                                                                          | 59 |
| 4.9.1. Approval of Research Ethics Committee of RSUD Dr. Soetomo<br>Surabaya .....                                             | 59 |
| 4.9.2. Anonymity .....                                                                                                         | 60 |
| 4.9.3. Confidentiality .....                                                                                                   | 60 |
| 4.9. Operational Framework .....                                                                                               | 61 |
| CHAPTER 5 RESEARCH RESULT .....                                                                                                | 62 |
| 5.1 Classification of Procedure in Intensive Observation Room (Ruang Observasi<br>Intensif/ROI) RSUD Dr. Soetomo Surabaya..... | 62 |
| 5.2 Pain Assessment .....                                                                                                      | 63 |
| 5.2.1 Wong-Baker Faces Pain Rating Scale (WBFS) .....                                                                          | 63 |
| 5.2.2 Critical Care Pain Observation Tool .....                                                                                | 64 |
| 5.3 Types of Drugs .....                                                                                                       | 64 |
| 5.3.1 Analgesic Profile .....                                                                                                  | 65 |
| 5.3.2 Adjuvant Profile .....                                                                                                   | 65 |
| 5.3.3 Sedative Profile.....                                                                                                    | 66 |
| 5.4 Route of Administration .....                                                                                              | 66 |
| 5.5 Drugs Dosage.....                                                                                                          | 67 |
| 5.6 Duration of Administration.....                                                                                            | 67 |
| 5.7 Amount of Drugs .....                                                                                                      | 68 |
| 5.8 Single Drug Profile .....                                                                                                  | 69 |
| CHAPTER 6 Discussion .....                                                                                                     | 70 |
| CHAPTER 7 Conclusion.....                                                                                                      | 74 |
| 7.1 Conclusion .....                                                                                                           | 74 |
| 7.2 Suggestion.....                                                                                                            | 74 |
| REFERENCES .....                                                                                                               | 75 |
| ATTACHMENT .....                                                                                                               | 82 |

**LIST OF TABLES**

|                                                                            |    |
|----------------------------------------------------------------------------|----|
| Table 2.1. Classification of Analgesics .....                              | 6  |
| Table 2.2. Indications and Contraindication of Non-Opioid Analgesics ..... | 19 |
| Table 2.3. Indication and Contraindications of Opioid Analgesics.....      | 24 |
| Table 2.4. Dose and Route of Administration for Analgesic .....            | 33 |
| Table 2.5. List of Adjuvant Analgesics .....                               | 35 |
| Table 2.6. Dose and Route of Administration for Adjuvant Analgesics .....  | 41 |
| Table 2.7. Studies supporting the use of combination analgesics .....      | 45 |
| Table 2.8. Critical Care Pain Observation Tool .....                       | 50 |
| Table 2.9. Behavioral Pain Scale .....                                     | 51 |

**LIST OF FIGURES**

|                                                                                                                         |    |
|-------------------------------------------------------------------------------------------------------------------------|----|
| Figure 2.1. Anatomy of Pain .....                                                                                       | 43 |
| Figure 2.2. Prevalence of frequent use of morphine, fentanyl and sufentanil for analgesia<br>according to country ..... | 49 |
| Figure 2.3. Facial Expression in Critical Care Pain Observation Tool (CPOT) .....                                       | 51 |
| Figure 2.4. Wong-Baker Faces Pain Rating Scale.....                                                                     | 52 |
| Figure 2.5. Wong-Baker Faces Pain Rating Scale with NRS Modification.....                                               | 53 |

**LIST OF ATTACHMENTS**

|                                           |    |
|-------------------------------------------|----|
| Attachment 1. Reseach Schedule Plan ..... | 82 |
| Attachment 2. Ethical Clearance .....     | 83 |

**LIST OF ABBREVIATIONS**

|               |                                                    |
|---------------|----------------------------------------------------|
| ROI           | : Ruang Observasi Intensif                         |
| ICU           | : Intensive Care Unit                              |
| NSAIDs        | : Non-Steroidal Anti-Inflammatory Drugs            |
| COX           | : Cyclooxygenase                                   |
| NMDA          | : N-Methyl-D-aspartic acid or N-Methyl-D-aspartate |
| CABG          | : Coronary Artery Bypass Graft                     |
| cQT           | : Corrected QT Interval                            |
| WHO           | : World Health Organization                        |
| BUN           | : Blood Urea Nitrogen                              |
| JRA           | : Juvenile Rheumatoid Arthritis                    |
| CYP450        | : Cytochrome P450                                  |
| NAPQI         | : N-acetyl-p-benzoquinone imine                    |
| CDC           | : Center for Disease Control and Prevention        |
| CPOT          | : Critical Pain Observation Tool                   |
| BPS           | : Behaviour Pain Scale                             |
| VAS           | : Visual Analog Scale                              |
| NRS           | : Numerical Pain Rating Scale                      |
| WBFS          | : Wong-Baker Faces Pain Rating Scale               |
| FDA           | : The United States Food and Drugs Administration  |
| IM            | : Intramuscular                                    |
| IV            | : Intravenous                                      |
| MI            | : Myocardial Infarction                            |
| TNF- $\alpha$ | : Tumour Necrosis Factor                           |