

PATTERNS OF MEDICINE USE FOR COVID-19 PATIENTS AT UNDATA HOSPITAL PALU

Pola Penggunaan Obat pada Pasien Covid-19 di RSUD Undata Palu

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Abstract

Background: Covid-19 cases had drastically increased. Little therapy has been formulated to respond to the situation.

Aims: This study aims to illustrate the pattern of drug use in Covid-19 patients at Undata Palu Hospital.

Methods: This study is a type of cross-sectional descriptive study using a cross-sectional design and collecting data retrospectively from medical records at Undata Hospital Palu in 2020.

Results: In 2020, 186 patients were confirmed positive for Covid-19. There were 95 female patients (51.9%) and 50 patients at the age of 46-55 years (27.3%). The severe symptoms happened to 109 patients (59.6%). The most common clinical manifestation was cough in 127 patients (23.3%). The most common comorbidity was pneumonia (30.8%). The most widely used primary therapy was the antibiotic azithromycin applied to 155 patients (30.0%), and the most widely used supportive therapy was vitamin C among 141 patients (20.1%). Oseltamivir antiviral therapy was administered to 132 patients (25.6%) and remdesivir to 34 patients (6.6%).

Conclusion: Covid-19 patients were mostly treated with antibiotic therapy (41.5%), antiviral therapy (32.2%), antimalarial therapy (15.7%), and corticosteroid therapy (10.7%). As many as 132 patients took oseltamivir, and 34 patients took remdesivir. However, for now, oseltamivir is no longer used.

Keywords: antivirus, Covid-19, patterns of medicine use

Abstrak

Latar Belakang: Covid-19 semakin meningkat baru-baru ini. Masih sedikit terapi yang diteliti untuk menanggulangi situasi ini.

Tujuan: Penelitian ini bertujuan untuk mengetahui pola penggunaan obat Covid-19 dan jenis antivirus yang digunakan di Rumah Sakit Umum Daerah (RSUD) Undata Palu.

Metode: Penelitian ini merupakan jenis penelitian deskriptif secara potong lintang dengan pengambilan data secara retrospektif dari data rekam medik di RSUD Undata Palu pada tahun 2020.

Hasil: Selama tahun 2020 terdapat 186 pasien terkonfirmasi positif Covid-19. Terdapat 95 pasien perempuan (51,9%) dan 50 pasien pada usia 46-55 tahun (27,3%). Tingkat keparahan paling banyak terjadi pada 109 pasien (59,6%). Manifestasi klinis yang paling banyak adalah batuk pada 127 pasien (23,3%). Penyakit penyerta yang paling banyak adalah pneumonia yang terjadi pada 117 pasien (30,8%). Terapi utama yang paling banyak digunakan adalah antibiotik azitromisin pada 155 pasien (30,0%). Terapi penunjang yang paling banyak digunakan adalah vitamin C pada 141 pasien (20,1%). Terapi antivirus Oseltamivir diberikan pada 132 pasien (25,6%) dan remdesivir pada 34 pasien (6,6%).

Kesimpulan: Pasien Covid-19 sebagian besar diobati dengan terapi antibiotik (41,5%), terapi antivirus (32,2%), terapi antimalaria (15,7%), dan terapi kortikosteroid (10,7%). Sebanyak 132 pasien memakai oseltamivir dan 34 pasien memakai remdesivir. Namun, untuk saat ini oseltamivir tidak lagi digunakan.

Kata kunci: Antivirus, Covid-19, pola penggunaan obat



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Introduction

Coronavirus disease 2019 (Covid-19) is an infectious disease caused by SARS-CoV-2 (Acute Respiratory Syndrome Coronavirus-2). It was firstly detected in Wuhan, the capital of China's Hubei province in December 2019, and it has spread quickly around the world (Siahaan, 2020). Covid-19 is a new type of virus that has never been identified to attack humans before (Mona, 2020). The number of cases in Indonesia on March 8, 2021, reached 1,386,556 positive cases and 37,547 deaths. Meanwhile, in Central Sulawesi, there were 10,387 positive cases and 264 deaths (Indonesian Ministry of Health, 2021). On March 8, 2021, in Palu there were 2768 confirmed cases and 79 deaths (Central Sulawesi Provincial Health Office, 2021). The medical records from the Undata Palu Hospital in 2020 showed there were 139 suspected patients, 186 positive patients, and 31 deaths.

Pharmacological therapy as Covid-19 management is categorized into asymptomatic, mild, moderate, severe or critical levels. Patients without symptoms are recommended to continue mild treatment through the administration of vitamins and antivirals such as favipiravir. However, those with symptoms such as fever could be given moderate treatment such as paracetamol, comorbid treatment, vitamins, antiviral favipiravir or remdesivir, and anticoagulant. Severe or critical symptoms are treated by giving vitamins, antiviral favipiravir or remdesivir, corticosteroids, anti-interleukin-6, comorbid treatment and supportive drugs. If one performs shock procedures, she/he could be given anticoagulants (Indonesian Lung Doctors Association, 2021).

The increasing number of Covid-19 cases every day is a serious problem, but no cure for Covid-19 has been found yet. As of now, different drugs have been used to save the lives of patients, especially those with severe or critical symptoms (Setiadi *et al.*, 2020). Because of the high incidence, proper treatment of Covid-19 disease and its complications must be given rationally. The Covid-19 symptoms in

Indonesia are divided into 4 classes: asymptomatic, mild, moderate, and severe. Pharmacological therapy given is different in each class (Burhan *et al.*, 2020). Antivirus available at Undata Palu Hospital is oseltamivir, remdesivir favipiravir. Based on the explanation above, the purpose of the study was to describe the pattern of drug use in Covid-19 patients at Undata Palu Regional General Hospital.

Method

This study was conducted from March to May 2021 using a descriptive cross-sectional design. It collected data from medical records of Covid-19 patients at Undata Hospital retrospectively. The research population and samples were all Covid-19 patients at the Undata Palu Hospital in 2020. The inclusion criteria applied to patients diagnosed with Covid-19 positive and those with comorbidities who had been confirmed positive. While patients whose medical record data were incomplete were excluded from the study.

This study analyzed secondary data from medical records on age, gender, occupation, disease diagnosis, types of medical therapy, clinical manifestations, patient severity, and comorbidities. The data were analyzed descriptively to identify patterns of medicine use for Covid-19 patients at Undata Hospital Palu. The data were processed in the Microsoft Excel program and then presented in percentages and average values.

Result and Discussion

Out of 186 patients screened, 183 patients met the inclusion criteria. Table 1 informs that 183 patients were mostly females (51.9%) compared to males (48.1%). The incidence rate in women was more dominant than in men. Physically, women have weak conditions and relatively high-stress factors (Winugroho *et al.*, 2021). Moreover, the data showed some of them were pregnant. Pregnant women are classified as one of the vulnerable groups at risk of contracting Covid-19 because the physiological changes might occur during

pregnancy and decrease immunity (Liang and Acharya, 2020). Male patients are more exposed to Covid-19 than women. The high number of male patients was picturized at national and provincial levels in Indonesia (Chairani, 2020). However, the results could not justify gender factors in Covid-19 cases (Wenham *et al.*, 2020).

Table 1. Distribution of demographic characteristics of Covid-19 patients at Undata Hospital Palu in 2020

| Characteristics | n | % |
|-----------------|----|------|
| Gender | | |
| Man | 88 | 48.1 |
| Woman | 95 | 51.9 |
| Age | | |
| 5-11 | 1 | 0.5 |
| 12-16 | 1 | 0.5 |
| 17-25 | 15 | 8.2 |
| 26-35 | 30 | 16.4 |
| 36-45 | 35 | 19.1 |
| 46-55 | 50 | 27.3 |
| 56-65 | 31 | 16.9 |
| ≥ 65 | 20 | 10.9 |

Data show (Table 1) that the highest prevalence occurred to Covid-19 patients aged 46-55 years (27.3%), followed by those aged 36-45 years (19.1%). People of working age often work outside the home and thus have contact with public places where chances of contracting Covid-19 are higher (Styawan, 2021). The immunity system will get weaker along with increasing age (Widayanto., *et al* 2021). The most common age group infected by Covid-19 is 40-59 years old (Vermonte and Wicaksono, 2020).

Table 2. Distribution of clinical characteristics of Covid-19 patients at the Undata Hospital Palu in 2020

| Clinical Characteristics | n | % |
|--------------------------|-----|------|
| Severity | | |
| Asymptomatic | 5 | 2.7 |
| Mild | 36 | 19.7 |
| Moderate | 109 | 59.6 |
| Severe | 28 | 15.3 |
| Critical | 5 | 2.7 |

| Clinical Characteristics | n | % |
|--------------------------|-----|------|
| Fever | 99 | 18.2 |
| Cough | 127 | 23.3 |
| Cough with phlegm | 10 | 1.8 |
| Dry cough | 4 | 0.7 |
| Coughing up with blood | 2 | 0.4 |
| Have a cold | 8 | 1.5 |
| Flu | 6 | 1.1 |
| Congested | 45 | 8.3 |
| Hard to breathe | 50 | 9.2 |
| Anosmia | 30 | 5.5 |
| Ageusia | 2 | 0.4 |
| Limp body | 42 | 7.7 |
| Decreased appetite | 8 | 1.5 |
| Nausea | 26 | 4.8 |
| Gag | 12 | 2.2 |
| Dizzy | 3 | 0.6 |
| Headache | 6 | 1.1 |
| Back pain | 13 | 2.4 |
| Diarrhea | 5 | 0.9 |
| Decreased consciousness | 1 | 0.2 |
| Itchy throat | 3 | 0.6 |
| Heartburn | 10 | 1.8 |
| Sore throat | 5 | 0.9 |
| Chest pain | 11 | 2.0 |
| Back pain | 2 | 0.4 |
| Whole-body pain | 4 | 0.7 |
| Dysphagia | 1 | 0.2 |
| Adinophagia | 2 | 0.4 |
| Nervous | 1 | 0.2 |
| Worried | 1 | 0.2 |
| Swollen gums | 1 | 0.2 |
| Bleeding gums | 1 | 0.2 |
| Rash | 2 | 0.4 |
| Insomnia | 2 | 0.4 |
| Comorbidities | | |
| No comorbidities | 16 | 4.2 |
| Pneumonia | 117 | 30.8 |
| Bronchitis | 24 | 6.2 |
| Diabetes Mellitus 2 | 37 | 9.6 |
| Breathing failure | 15 | 3.9 |
| severe ARI | 4 | 1.0 |
| Hypertension | 17 | 4.4 |
| HHD | 21 | 5.5 |
| Dyspepsia | 16 | 4.2 |
| Acute diarrhea | 1 | 0.3 |
| Hypokalemia | 18 | 4.7 |
| Hypoglycemia | 1 | 0.3 |
| Hyponatremia | 9 | 2.3 |
| Elevated liver enzymes | 16 | 4.2 |

| Clinical Characteristics | n | % |
|-------------------------------|----|-----|
| Pleural effusion | 3 | 0.8 |
| Electrolyte imbalance | 11 | 2.9 |
| Gout arthritis | 3 | 0.8 |
| CKD stage 5 | 2 | 0.5 |
| CKD | 4 | 1.1 |
| Acute on CKD | 4 | 1.1 |
| CHF ec HHD | 9 | 2.3 |
| ADHF ec HHD | 2 | 0.5 |
| CAD | 4 | 1.0 |
| Increased transaminase enzyme | 2 | 0.5 |
| Thrombocytopenia | 2 | 0.5 |
| Bronchiectasis | 1 | 0.3 |
| Nstemi | 2 | 0.5 |
| Non-hemorrhagic stroke | 1 | 0. |
| Cardiac arrest | 1 | 0.3 |
| Parkinson | 1 | 0.3 |
| Epilepsy | 1 | 0.3 |
| Cachexia | 1 | 0.3 |
| Pruritus pro evaluation | 1 | 0.3 |
| Weakness | 2 | 0.5 |
| PTCA | 1 | 0.3 |
| Anemia gravis | 1 | 0.3 |
| Renal anemia | 1 | 0.3 |
| Aplastic anemia | 1 | 0.3 |
| prostate cancer | 1 | 0.3 |
| Suspected abdominal tumor | 1 | 0.3 |
| ADHF | 1 | 0.3 |
| Vertigo | 1 | 0.3 |
| VES | 2 | 0.5 |
| Post curettage | 1 | 0.3 |

The severity of Covid-19 is classified into asymptomatic, mild, moderate, severe, and critical. Asymptomatic people had no symptoms and no evidence of viral pneumonia or hypoxia. Such patients were categorized as mild. Mild symptoms that usually appear include cough, fever, myalgia (muscle pain), fatigue (tiredness), shortness of breath, and anorexia. Unspecific symptoms include stuffy nose, sore throat, diarrhea, headache, vomiting, nausea, loss of smell (anosmia), or loss of taste (ageusia). Moderate severity is

characterized by pneumonia (shortness, fever, cough, and rapid breathing) but no signs of severe pneumonia. The symptoms were accompanied by a respiratory rate of more than 30 x/minute, SpO₂ <93% in room air, or severe respiratory distress. While the critical patients were accompanied by ARDS (Acute respiratory distress syndrome), septic shock, and sepsis (Burhan *et al.*, 2020). Covid-19 patients have similar symptoms experienced by patients with SARS (Severe acute respiratory syndrome). The moderate symptoms are similar to those of the flu but different from person to person. Most people infected by Covid-19 usually have mild to moderate symptoms (Hairunisa and Amalia, 2020). Table 2 informs that Most of the patients had moderate severity (59.6%), followed by mild severity (19.7%).

Common clinical symptoms are fever with a body temperature of > 38°C, cough, difficulty in breathing, myalgia (muscle pain), severe shortness of breath, fatigue (fatigue), and gastrointestinal symptoms such as diarrhea and other respiratory system disorders. In severe cases, progressive life-threatening symptoms include uncorrected metabolic acidosis, septic shock, ARDS, dysfunction of the coagulation system within days, and bleeding (Indonesian Lung Doctors Association, 2020). The most common signs and symptoms are fever (83-98%), cough (76-82%), and dyspnea (31-55%) (Wu *et al.*, 2020). Table 2 shows coughing was the most common clinical symptom found in 127 patients (23.3%).

Serious symptoms occurred to patients who had certain congenital diseases or comorbidities (Marzuki *et al.*, 2021). Table 2 demonstrates pneumonia occurred to 117 patients (30.8%). Covid-19 can attack the respiratory system and also cause respiratory problems, such as pneumonia and mild to severe lung infections leading to deaths (Zhang *et al.*, 2020)

Table 3. Distribution of the medicine use patterns in Covid-19 patients at Undata Hospital Palu

| Group Name | Medicine | n | Total | % |
|---|---------------------|----------------|-------|-------|
| Main therapy | | | | |
| Antibiotics | Azithromycin | 155 | 214 | 41.5 |
| | Levofloxacin | 43 | | |
| | Ceftriaxone | 16 | | |
| Antivirus | Remdesivir | 34 | 166 | 32.2 |
| | Oseltamivir | 132 | | |
| Antimalarial | Hydroxychloroquine | 81 | 81 | 15.7 |
| Corticosteroids | Dexamethasone | 55 | 55 | 10.7 |
| Supportive therapy | | | | |
| Vitamin | Vitamin C | 141 | 319 | 20.10 |
| | Becom-C | 32 | | |
| | Becom-Zet | 33 | | |
| | Becefort | 6 | | |
| | Neurodex | 8 | | |
| | Lapibal | 1 | | |
| | Farbion | 7 | | |
| | Prove-C | 5 | | |
| | Hemafort | 4 | | |
| | Cernevit | 15 | | |
| | Vivena | 16 | | |
| | Vastral | 2 | | |
| | larce | 46 | | |
| | Curvit | 3 | | |
| | Mucolytic | Acetylcysteine | | |
| Ambroxol | | 1 | | |
| Mineral | zinc | 23 | 23 | 1.40 |
| Herbs | Curcuma | 24 | 24 | 1.50 |
| Corticosteroids | Methylprednisolone | 7 | 8 | 0.50 |
| | Inerson | 1 | | |
| Antacid | Antacid | 3 | 3 | 0.20 |
| Calcium channel blockers | Amlodipine | 50 | 60 | 3.80 |
| | Nicardipine | 3 | | |
| | Nifedipine | 7 | | |
| | Furosemide | 27 | | |
| Diuretic | Hydrochlorothiazide | 3 | 30 | 1.90 |
| | Lisinopril | 3 | | |
| Angiotensin-converting enzyme inhibitor | Lisinopril | 3 | 6 | 0.40 |
| | Ramipril | 3 | | |
| ARB (Angiotensin Receptor Blocker) | Candesartan | 4 | 4 | 0.30 |
| | | | | |
| Adrenergic inhibitor | Beta one | 3 | 20 | 1.30 |
| | Concor | 9 | | |
| | Bisoprolol | 6 | | |
| | Methyldopa | 2 | | |

| Group Name | Medicine | n | Total | % |
|--|--------------------------------|-----|-------|-------|
| Nitrate | NTG (Nitroglycerin) | 4 | 28 | 1.80 |
| | ISDN (Isosorbide dinitrate) | 21 | | |
| | Nitrocav | 3 | | |
| Statins | Atorvastatin | 15 | 19 | 1.20 |
| | Simvastatin | 4 | | |
| Biguanide | Metformin | 12 | 12 | 0.80 |
| Insulin | Novorapid | 26 | 45 | 2.80 |
| | Levemir | 19 | | |
| Sulfonylureas | Glimepiride | 9 | 9 | 0.60 |
| Sulfonylureas and Biguanides | Glucovance | 1 | 2 | 0.10 |
| Opioid analgesics | Amaryl | 1 | 16 | 1.00 |
| | Ultracet | 1 | | |
| | Codeine | 14 | | |
| | Patracet | 1 | | |
| | Meloxicam | 4 | | |
| | Ketorolac | 14 | | |
| | Diclofenac Sodium | 1 | | |
| NSAIDs (Nonsteroidal Anti-Inflammatory Medicines) | Mefenamic acid | 14 | 52 | 3.30 |
| | Aspirin | 3 | | |
| | Ketoprofen | 2 | | |
| | Ibuprofen | 14 | | |
| | Paracetamol | 14 | | |
| Antipyretic and Analgesic | Paracetamol | 83 | 83 | 5.20 |
| Antibiotics | Metronidazole | 3 | 11 | 0.70 |
| | Co-trimoxazole | 1 | | |
| | Moxifloxacin | 1 | | |
| | Meropenem | 2 | | |
| | Ceftazidime | 1 | | |
| | Anbacim | 3 | | |
| Antiulcer | Omeprazole | 149 | 295 | 18.60 |
| | Ranitidine | 40 | | |
| | Lansoprazole | 67 | | |
| | Sucralfate | 37 | | |
| | Nexium | 2 | | |
| Antiemetic | Domperidone | 47 | 76 | 4.80 |
| | Ondancetron | 24 | | |
| | Metoclopramide | 5 | | |
| Antihistamines | Cetirizine | 30 | 34 | 2.10 |
| | Betahistine | 4 | | |
| Antiplatelet | clopidogrel | 20 | 30 | 1.90 |
| | aspirin | 10 | | |
| Anticoagulants | Diviti | 6 | 9 | 0.60 |
| | Lovenox | 3 | | |
| Antigout | Recolfar | 4 | 4 | 0.30 |
| Antipsychotic | CPT (chlorpromazine) | 1 | 1 | 0.10 |

| Group Name | Medicine | n | Total | % |
|---|--------------------|----|-------|------|
| SSRI antidepressants (Selective serotonin reuptake inhibitor) | kalxentin | 2 | 2 | 0.10 |
| Tricyclic antidepressants | Amitiprine | 1 | 1 | 0.10 |
| antiparkinson | Hexymer | 1 | 1 | 0.10 |
| Anticonvulsant and antiepileptic | Gabapentin | 2 | 3 | 0.20 |
| | Valproic Acid | 1 | | |
| Antifungal | Ketoconazole | 1 | 1 | 0.10 |
| Antidiarrhea | Lolida | 1 | 10 | 0.60 |
| | Loperamide | 6 | | |
| | Mew tab | 3 | | |
| Benzodiazepam | Alprazolam | 36 | 43 | 2.70 |
| | Clobazam | 6 | | |
| | Diazepam | 1 | | |
| Xanthine oxidation inhibitor | Allopurinol | 10 | 10 | 0.60 |
| Prostaglandins & Oxytocin | Methylergometrine | 2 | 2 | 0.10 |
| Systemic hemostatic | Tranexamic Acid | 4 | 6 | 0.40 |
| | Kalnex | 2 | | |
| Liver function supplements | Hepa Q | 25 | 25 | 1.60 |
| Laxative | Pralax | 4 | 7 | 0.40 |
| | Dulcolax | 2 | | |
| | Laxadine | 1 | | |
| DPP-IV Inhibitors (Dipeptidyl peptidase-4 inhibitors) | Galvus | 1 | 1 | 0.10 |
| Beta 2 agonist | Symbicort | 1 | 1 | 0.10 |
| Electrolyte | Potassium Chloride | 26 | 26 | 1.60 |
| Vasoconstrictor | Epinephrine | 1 | 2 | 0.10 |
| | Vascon | 1 | | |

The main types of therapy most often used are in the antibiotic group, namely 155 azithromycin, 43 levofloxacin, 16 ceftriaxone. Azithromycin is the most commonly used as it can suppress pathogenic bacteria in patients with additional bacterial infections. It is a macrolide antibiotic that can prevent serious respiratory infections in patients with pneumonia (Bacharier *et al.*, 2015). While macrolide antibiotics are suggested as first-line therapy in combination with lactams in CAP patients with Covid-19 (Metlay and Waterer, 2020). In vitro studies have shown that azithromycin can inhibit the replication of Zika virus and H1N1 influenza virus and have anti-inflammatory and immunomodulatory effects on

respiratory systems damaged (Bosseboeuf *et al.*, 2018; Zimmermann *et al.*, 2018; Tran *et al.*, 2019; Zhang *et al.*, 2019).

Oseltamivir is an antiviral group that gets the second highest drug that is widely used by Covid-19 patients at Undata Palu Hospital. Oseltamivir belongs to the group of neuraminidase inhibitors (NAIs) that work by inhibiting viral neuraminidase (Uyeki, 2018). The effect of this barrier is to block the release of virus particles from the infected cells so that the virus less spreads in the respiratory system (Setiadi *et al.*, 2020). Oseltamivir has no activity against SARS-CoV-2 (Choy *et al.*, 2020). However, the antiviral clinical trial for Covid-19 patients was not finished while the research was going on. After the research, it turned

out oseltamivir research was withdrawn. The revised Government's Covid-19 Protocol in Indonesia issued in July 2021 recommends the use of favipiravir as a pharmacological therapy for mild, moderate, severe or critical Covid-19 symptoms (Indonesian Lung Doctors Association, 2021). Favipiravir works as a selective inhibitor of RNA-dependent RNA polymerase (RdRp), which is one of the enzymes used for the transcription and replication of viral RNA genomes (Setiadi *et al.*, 2020). Thus, favipiravir has the potential to inhibit replication of different types of RNA viruses, and it is considered potential as a broad-spectrum antiviral. In-vitro, favipiravir is effective for influenza viruses type A, B, and C. The results of this in-vitro study are confirmed by the results of studies in animals infected with influenza viruses that show that favipiravir can increase survival rate and decrease the number of viruses (viral load) (Setiadi *et al.*, 2020). Chen *et al.* (2020) concluded if favipiravir is used, it can be considered giving a dose of 1,600 mg twice a day on the first day and 600 mg twice a day for the next days. The duration of favipiravir treatment was 14 days, but decisions regarding the length of the drug use were determined by the doctor in accordance with the clinical assessment result. In addition, the use of favipiravir is not recommended in pregnant women because it is teratogenic and embryotoxic. At the time of writing this article, we found that research by Chen *et al.* still needs to go under further investigation by experts (Setiadi *et al.*, 2020). Manabe *et al.* (2021) show favipiravir has a strong possibility of Covid-19 treatment. Patients with mild to moderate symptoms have a lung recovery rate within 14 days while favipiravir is administered. Hence, early initiation of favipiravir is even needed by patients with mild Covid-19 symptoms before pneumonia or lung damage gets worse.

Furthermore, the antimalaria group, namely hydroxychloroquine, is used to treat autoimmune diseases e.g., systemic lupus erythematosus, and to treat malaria. The mechanism of chloroquine and hydroxychloroquine to act in treating

SARS-CoV-2 is by increasing endosome pH and inhibiting ACE2 receptor glycosylation. Thus, they prevent the virus from binding to the receptor. Chloroquine and hydroxychloroquine have immunomodulatory effects, and they are hypothesized to have a potential mechanism in Covid-19 treatment (Rusdi, 2021). However, for now the use of hydroxychloroquine is no longer given to Covid-19 patients. Revocation for hydroxychloroquine use for Covid-19 patients is a second clinical trial termination by the World Health Organization (WHO). The WHO stopped the solidarity trial because it judged hydroxychloroquine to be more risky rather than beneficial (Hayya, 2021).

Another treatment is the corticosteroid group e.g., dexamethasone. According to Russell *et al.* (2020), the rational use of corticosteroids is to reduce the inflammatory response that can cause acute lung injury and acute respiratory distress syndrome (ARDS). Confirmed patients with severe COVID-19 symptoms will develop systemic inflammation, leading to lung injury and multisystemic organ dysfunction (Covid-19 Treatment Guidelines Panel and Recovery Collaborative Group, 2020). Dexamethasone is administered to patients with moderate and severe Covid-19 symptoms (Burhan *et al.*, 2020). Supporting therapy aims to increase the immune system and treat symptoms and comorbidities which can cause more serious clinical symptoms. The most used Vitamin group (20.1%) was Vitamin C. Taking Vitamin C can strengthen the immune system. This vitamin can also act as an antioxidant and increase differentiation and proliferation, as well as modulate the function of B lymphocytes and T lymphocytes (Carr and Maggini, 2017). During the pandemic, taking vitamins is a popular preventive measure to do.

Conclusion

Covid-19 patients were mostly treated with antibiotic therapy (41.5%), antiviral therapy (32.2%), antimalarial

therapy (15.7%), and corticosteroid therapy with a percentage of (10.7%). As many as 132 patients took oseltamivir, and 34 patients took remdesivir. However, for now, oseltamivir is no longer used.

Abbreviations

ARI: Acute respiratory infection; HHD: Hypertensive heart disease; CAD: Coronary artery disease; PTCA: Percutaneous transluminal coronary angioplasty; ADHF: Acute decompensated heart failure; Covid-19: Coronavirus disease 2019; RNA: Ribose nucleotide acid; SARS-CoV-2: Acute respiratory syndrome Coronavirus-2), VES: Ventricular extrasystole.

Declarations

Ethics approval and consent to participate

This study has been approved by the Faculty of Medicine, Tadulako University with the letter number of 3275/UN 28.1.30/KL/2021.

Conflict of interest

There is no conflict of interest in the research.

Availability of data and material

Not applicable.

Author's contributions

AR: conceived, designed the analysis, drafted, wrote, revised, and performed the manuscript; NA: conceived, drafted, and designed the analysis; DSA: collected and analysis data, and revised the manuscript.

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