

Research Article

Descriptive Study: Attitude and Behaviour Regarding Oral Corticosteroid Use in Bebita Clinic Cicurug, Sukabumi in 2019

Audia Nizhma Nabila^{1*}, Gladys Dwiani Tinovella Tubarad², Vanianissa Azzahra³

¹Department of Pharmacology, Faculty of Medicine and Health, Universitas Muhammadiyah Jakarta, Indonesia

^{2,3}Medical Study Program, Faculty of Medicine and Health, Universitas Muhammadiyah Jakarta, Indonesia

*Corresponding author: audianizhma@gmail.com

ABSTRACT

Background: Corticosteroids are derivatives of steroid hormones that have the effect of inhibiting the inflammatory response. Glucocorticoid is the type of corticosteroid that is easy to obtain and has a high anti-inflammatory effect. Therefore, glucocorticoids are often used in various therapies. However, the use of this drug should be monitored since its side effects can be harmful to the health as paralytic effects or even lethal effects. **Purposes:** This study aims to determine the behavior of using oral corticosteroids in patients at the Bebita Cicurug Clinic, Sukabumi. **Methods:** This is a descriptive quantitative research study. Data collection was done from September to December 2019. The respondents of this study were 96 subjects of Bebita Cicurug Clinic with a history of oral glucocorticoid usage. The data was taken using a questionnaire and medical records. **Result:** The most widely used glucocorticoid type is Methylprednisolone 4 mg and dexamethasone 0,5 mg. Overall, 89.6% of respondents used corticosteroids for a week or less. A total of 21.9% had tried to get corticosteroids without a prescription (self-medication), and all of them didn't get restricted on purchasing corticosteroids. **Conclusion:** In general, patients in this study had good behavior in using corticosteroids (using steroids according to a doctor's prescription), but 21.9% had tried to get corticosteroids without a prescription, and all of them didn't get restricted on purchasing corticosteroids. Doctors and health workers must clearly explain prescribed drugs' benefits and side effects, especially in patients with chronic diseases. Then ensure that the patient has understood the benefits and side effects of the medications used.

Keywords: corticosteroid use, oral glucocorticoids, self-medication

INTRODUCTION

Corticosteroids are derivatives of steroid hormones. The adrenal glands normally produce steroid hormones. Corticosteroids can be classified into two types, namely glucocorticoids and mineralocorticoids. Generally, corticosteroids are used to inhibit the inflammatory response. Glucocorticoids are corticosteroids that

promote gluconeogenesis (glucose metabolism), while mineralocorticoids affect sodium and mineral balance (sodium retention and potassium excretion) (1).

Corticosteroids are primarily used for palliative therapy but can also be substituted for therapy. Ideally, the dose of this corticosteroid depends on the individual. The dose can be increased

slowly according to the symptoms experienced by the patient, then decreased but still paid attention to the effect. In the long term, Corticosteroids should be given in low doses, but also pay attention to their effectiveness. In life-threatening conditions, Corticosteroids may be used in high doses but must be considered between the side effects and the effects of the disease itself (2). In the regulation of the Food and Drug Supervisory Agency (BPOM) Number 23 of 2019 concerning Technical Requirements for Cosmetic Ingredients. The use of corticosteroids is allowed for medicinal purposes with a period of use of not more than 14 days and under the supervision of a doctor (3).

Stopping the drug suddenly while on long-term therapy and continuous administration with uncontrolled doses can cause serious side effects when using corticosteroids. Side effects are osteoporosis, adrenal insufficiency, fluid and electrolyte balance disorders, Cushing's Syndrome, gastric/duodenal ulcers, and others (2). Corticosteroids should be used under the supervision of a doctor. Doctors must consider the side effects of corticosteroids on the patient's body. However, this can be dangerous due to the lack of knowledge, education, and instant healing effects of corticosteroids. Many people take self-medication and do not know the side effects of using steroid drugs without controlled doses. Because ordinary people do not understand the content of herbal medicine, several herbal aches and pains contain corticosteroids so that the effect is faster (4).

According to World Health Organization, self-medication is the selection and use of medicines by individuals to treat self-recognized illnesses

or symptoms (5). Self-medication has several advantages when done correctly, including saving time and money by seeking treatment at health facilities (6). It is undeniable that self-medication also has some risks, especially in developing countries with populations with a high level of poor knowledge in health, which increases the risk of using inappropriate drugs (7). Self-medication behavior in Indonesian society is high. In 2013, it was recorded that around 91% of Indonesians practice self-medication (8). Self-medication itself is influenced by various factors such as age, gender, income and expenses, self-care orientation, education level, medical knowledge, satisfaction, and disease severity (9). This study aims to show oral corticosteroid use behavior among patients in Bebita Clinic Cicurug, Sukabumi. The results of this study become a consideration for stakeholders, doctors, and health workers so that supervision and rules for purchasing corticosteroids without a prescription are tightened.

METHODS

The design of this study is descriptive and quantitative. Data collection was conducted from September 2 - to December 2019 in Bebita Clinic Cicurug, Sukabumi. The respondents in this study were 96 people with a history of oral glucocorticoid usage. The data is obtained from questionnaires and medical records. Inclusion criteria in this study were outpatients with a history of using oral glucocorticoid corticosteroids. These patients have been treated for more than three months and were willing to become research respondents. The exclusion criteria for this study were incomplete questionnaires and medical records. The data collection process begins

with the patient who comes, and then the researcher checks the patient's medical history; if the patient has ever received a corticosteroid prescription and meets the inclusion criteria, the patient is given a questionnaire and accompanied by the researcher in filling out the questionnaire.

RESULTS

Patients's General Characteristics

In all 96 respondents who used corticosteroids (glucocorticoids) in Bebita Clinic Cicurug, Sukabumi, most respondents were women, 60.4%, and 39.6% were men. Most of the respondents are under 50 years old 77%, and most have a high level of education, which is high school, 30.2%.

Table 1. Characteristics of subjects

Characteristics of subjects (n=96)	N (%)
Gender	
Male	38 (39.6%)
Female	58 (60.4%)
Age	
< 50	74 (77.1%)
≥ 50	22 (22.9%)
Level of education	
High Education (high school & college)	43 (44.8%)
Low Education (primary & junior high school)	53 (55.2%)

Table 2. Types of glucocorticoids used in Bebita Clinic

Types of Glucocorticoids	n (%)
Metilprednisolon 4 mg	60 (62.5%)
Metilprednisolon 8 mg	2 (2.1%)
Dexametason 0,5 mg	13 (13.5%)
Triamsinolon 4 mg	21 (21.9%)

The most widely used type of glucocorticoid is Methylprednisolone 4 mg, and the second one is Dexamethasone 0,5 mg. Table 3 shows the disease diagnosis

with corticosteroid treatment in Bebita Clinic Cicurug. Most of the patients suffer from Faringitis 28.1%, Rhinofaringitis 15.6% as well as Asthma bronchiale.

Table 3. Types of Glucocorticoids Used & Disease That Treated with Glucocorticoids

Types of Glucocorticoids	Types of Disease	n
Metilprednisolon 4 mg	Faringitis	27 (28.1%)
	Rhinofaringitis	15 (15.6%)
	Arthritis	9 (9.4%)
	Rhinitis Allergy	8 (8.3%)
	Conjungtivitis	2 (2.1%)
	Impetigo	1 (1%)
Metilprednisolon 8 mg	Bronkhitis	1 (1%)
	SLE	1 (1%)
Dexametason 0.5 mg	Psoriasis	1 (1%)
	Rhinofaringitis	15 (15.6%)
	Rhinitis Allergy	8 (8.3%)
	Scabies	5 (5.2%)
Triamsinolon 4 mg	Dermatitis	1 (1%)
	Asthma	15 (15.6%)
	Bronchiale	
	COPD	4 (4.2%)
	Sinusitis	1 (1%)

Corticosteroid Use Behavior

Of all patients who have filled out the questionnaire, most patients did not know about corticosteroids in the first place; 87.5%, only 12.5% of all patients knew about it. But all patients have good behavioral usage during treatments in the clinic, which is they use corticosteroid drugs after consulting with the doctor and following all the rules. After patients recover from their illness, they mostly still have good behavior; 78.1% and 21.9% have bad behavior. Patients gained information about corticosteroids from sources such as the internet, people, brochures, and books.

Self-medication of Glucocorticoids

Based on Table 4, 89.6% of respondents did not use corticosteroids for more than a week. A total of 21.9% of respondents had tried to get corticosteroids without a prescription, and all of them didn't get restricted on purchasing corticosteroids. Of 21.9% of patients that get corticosteroids without a prescription, 85.7% of respondents bought the corticosteroid at the pharmacy, while 14.3% got the corticosteroid from the midwife, the rest of the drugs, and people.

Tabel 4. Use Corticosteroids for More than a Week and Get Corticosteroids without Prescription

Use Corticosteroids for More than A Week	n
Yes	10 (10.4%)
No	86 (89.6%)
Corticosteroids Without Prescription	n
Yes	21 (21.9%)
No	75 (78.1%)

Another factors that involve in corticosteroid use behavior

This study found that other factors involved in using corticosteroids because did not receive information about corticosteroids (Table 5).

Tabel 5. Another factors that involve in corticosteroid use behavior

Reading Drug Labels	n
Yes	25 (26%)
No	71 (74%)
Received Information about Corticosteroids	n
Yes	23 (24%)
No	73 (76%)

DISCUSSION

The most widely used type of glucocorticoid in this research is Methylprednisolone 4 mg, and the second one is Dexamethasone 0.5 mg. This research is in line with Dayani's 2020 research results, with the most widely used type of drug being dexamethasone (10). Most of the patients in this study suffer from Faringitis, Rhinofaringitis, and Asthma bronchiale. Corticosteroids have shown a pivotal role in the treatment of various serious disorders such as autoimmune diseases, allergic processes, organ transplantation, rheumatologic, dermatological, pulmonary, hematological, ophthalmologic, gastrointestinal disorders, and others (11).

Corticosteroids are hormones produced in the adrenal cortex in the kidneys. Addison researched the adrenal glands in 1849. The adrenal cortex consists of two units that perform an essential role in producing steroid hormones: the inside that produces glucocorticoids and the outside that creates mineralocorticoids. Corticosteroids were identified in 1935 (12). The adrenal cortex is critical for living things to adapt because of its function in homeostasis. Corticosteroids affect the metabolism of carbohydrates, proteins, and fats and affect the function of other body systems (2). Corticosteroids have different metabolic and electrolyte regulatory activities. Corticosteroids can divide into two major groups, namely glucocorticoids and mineralocorticoids. The primary effect of glucocorticoids is to regulate carbohydrate metabolism, while the main impact of mineralocorticoids is to regulate electrolyte balance. The main steroid hormone outputs for the human body obtain

hydrocortisone/cortisol and aldosterone (13).

Corticosteroids are known for their overwhelming effects, so they are entitled "god's drugs." A corticosteroid dose can cause physiological or pharmacological effects depending on the individual. Its essential function is an anti-inflammatory, homeostatic function, helps the intrauterine lung maturation process, and becomes a blood-forming element. One in five American adults in a commercially insured plan were given prescriptions for short-term use of oral corticosteroids during a three-year period, with an associated increased risk of adverse events (14).

As a result of this research, 21.9% of respondents had tried to get corticosteroids without a prescription, and all of them didn't get restricted on purchasing corticosteroids. Any drug with a red label should be consulted for use by the doctor. Drugs with red labels can be bought only by prescription (15). In this study, patients can get corticosteroids freely from the pharmacies without a doctor's prescription before, and this case needs the government's concern. Red label drugs can seriously have adverse effects on patients without doctor consultation. In Rothman's research, it was found that the majority of pharmacists (more than 85%) have a perception that hard drugs for chronic diseases are drugs that can be given without a prescription the main reason pharmacists may hand over the drug because the patient is used to using it (16).

Another study conducted by Selma *S et al.* analyzes the community's knowledge, attitudes, and behavior in choosing safe and quality drugs, including reading the drug's label. The result is under 50% of 3 provinces in Indonesia, which

means that the general community still needs education and information from the government about choosing safe and high-quality drugs (17). Another study found that a factor affecting behavior in buying medicine is drug brand promotion. Communities get sources of information about most drugs through television, about 38.0%. This shows how important the availability of information is in influencing people's behavior in using drugs (18).

The higher the level of education of a person, the greater the possibility of behaving well. A possible factor is that people with higher education tend to be more curious about what is given to them, so they can also learn about the benefits and side effects of using this corticosteroid. This study found that patients gained information about corticosteroids from sources such as the internet, other people, brochures, and books. In Kristina *et al.*'s research (2007), the most influential factor in rational self-medication behavior in the people of Sleman Regency is the level of education (19).

This study shows that 89.6% of respondents did not use corticosteroids for more than a week. According to Schimmer & Parker (2012), using glucocorticoids for more than one week can cause corticosteroid toxicity, thereby increasing the risk of health problems (13). In addition, the dose of corticosteroids should equally be considered. Administration of corticosteroids with high enough doses should be done when the stomach is filled, and gastric protection between meals to minimize the occurrence of gastrointestinal ulcers (2). This needs to be considered, especially in the administration of corticosteroids in children. Another study found that in children who received one

corticosteroid blast, the blast was associated with a 1.4-2.2-fold increased risk of gastrointestinal bleeding, sepsis, and pneumonia in the first month after corticosteroid initiation. So the use of corticosteroids should be aware of the possible severe side effects associated with corticosteroid explosions, especially in children (20). Hence, the user must consult a doctor first to consider the benefits and side effects. Even though most patients do not know about corticosteroids (87,5%), the patient has good behavior in using glucocorticoids. The result is that 100% of patients behave well because they follow all the rules in using corticosteroid drugs after consulting with the doctor.

Glucocorticoid remedy is extensively used; however, withdrawal from glucocorticoids comes with a possible life-threatening threat of adrenal insufficiency. Recent case reports that adrenal disaster after glucocorticoid withdrawal remains a serious scientific practice problem. Partly due to difficulties in inter-study comparison, the actual prevalence of glucocorticoid-induced adrenal insufficiency is unknown. Still, it might be somewhere between forty-six and a hundred percent 24 h after glucocorticoid withdrawal, 26–49% after approximately one week, and some sufferers show extended suppression lasting months to years. Therefore, adrenal insufficiency would possibly be underdiagnosed in scientific practice (21). Within 30 days of corticosteroid initiation, the incidence of acute adverse events that result in significant morbidity and mortality (sepsis, venous thromboembolism, fracture) increased by twofold, to fivefold above background rates (14).

Despite their anti-inflammatory potential, corticosteroids should be used with caution. Given the number and severity of potential side effects, glucocorticoids require careful consideration of each patient's relative risks and benefits. The appropriate dose for each individual should be determined by trial and error and should be re-evaluated periodically. A single large dose of corticosteroid is harmless, and a short course of therapy (maximum one week) without specific contraindications is also harmless. However, if the duration of treatment is increased by more than one week, there will be an increased incidence of paralytic effects or even lethal effects. Another study found that systemic corticosteroids are associated with reduced executive cognitive functioning and a higher likelihood of mood and anxiety disorders in the general adult population (22). This is related to the duration of administration and the size of the dose given. In patients receiving substitution therapy, glucocorticoids do not provide specific or curative effects but can cure because of their anti-inflammatory and immunosuppressive effects (13).

Suppose glucocorticoids are consumed for symptomatic relief and not for a life-threatening disease. They do not need to be given until the infection is completely cured, just enough until the symptoms disappear. The dose is reduced gradually until the worsening symptoms are getting better with smaller doses (tapering off). Before using glucocorticoids, one should first consider using other NSAIDs (Non-Steroid Anti-Inflammatory Drugs). NSAIDs can help relieve symptoms and assist the process of dose reduction. High initial doses should be provided to reduce

inflammation if glucocorticoid therapy is used for lethal disease (e.g., pemphigus). If the effect is still not visible, the dose may be increased two to three times. Once the condition has improved and is no longer life-threatening, the dose should be reduced by carefully evaluating the patient and their symptoms. The relative side effects of corticosteroids and the treated disease should always be carefully considered (13). In this study, only about 10% of patients used corticosteroids for more than one week, meaning that the prescription in this study was quite good because about $\pm 90\%$ were not given for more than one week.

In Indonesia, the self-medication society is high. It was recorded that around 91% of Indonesians practice self-medication in 2013 (8). Self-medication itself is influenced by various factors such as age, gender, income and expenses, self-care orientation, education level, medical knowledge, satisfaction, and disease severity (9). It means that the general community still needs education and information from the government about choosing safe and high-quality drugs. Quality research is critical not only to determine the role of corticosteroids but to ensure good prescribing practice (23) and regulation in the purchase of non-prescription corticosteroids.

CONCLUSION

The most widely used glucocorticoid type is Methylprednisolone 4 mg and dexamethasone 0,5 mg. As much as 89.6% of respondents did not use corticosteroids for more than a week. 21.9% had tried to get corticosteroids without a prescription, and all of them didn't get restricted on purchasing corticosteroids. They bought the corticosteroid at the pharmacy, midwife,

the rest of the drugs, and others. Other factors that affect behavior in using corticosteroids are not reading drug labels and never receiving information about corticosteroids. Doctors and health workers must clearly explain prescribed drugs' benefits and side effects, especially in patients with chronic diseases.

This study still has many limitations, namely the cross-sectional method in the form of observation at one time. This study can only determine the relationship between the independent and dependent variables. Collecting data using subjective questionnaires allows for bias in the study. Researchers can not confirm whether the patient answered honestly; the researcher only accepted the patient's statement.

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CONFLICT OF INTEREST

The author(s) declare(s) that there is no conflict of interest.

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