

Impact of COVID-19 on geriatric outpatient dermatology in Indonesian tertiary hospital: A retrospective study

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Abstract

Background COVID-19 has greatly affected global healthcare including dermatology. Geriatric as one of the key leading populations has a greater risk of mortality and severity in contracting COVID-19. However, the need of getting dermatology care in the outpatient clinics cannot be neglected. Data regarding profile of geriatric patients in outpatient clinic in Indonesia were sparse.

Methods Retrospective study was conducted through electronic health record of Dr. Cipto Mangunkusumo Hospital, Jakarta, Indonesia. Several data were extracted and analyzed.

Results We collected 3256 geriatric patients presenting to dermatology outpatient clinic before pandemic, but only 1745 patients came to the clinic during the pandemic. There were changes in dominance of gender between the two eras. The most common diagnosis was dermatitis followed by infection.

Conclusion Although some changes were seen in pandemic era, type of registrant, diagnosis, procedures, comorbidities remained. This epidemiological study can serve as foundation for further study regarding geriatric population presenting with dermatology issues in COVID-19 era. A multi-center study could also be conducted in the future for more comprehensive knowledge.

Key words

COVID-19; Dermatology; Geriatrics; Outpatients.

Introduction

The new viral infection caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2),¹ COVID-19, first started in Wuhan Province, China in December 2019, now has been spreading around the world, including in Indonesia.² This global pandemic has resulted hundreds of billions of casualties and mortalities around the world. Elderly, as one of leading populations,³ has shown a greater severity related to COVID-19 as well as higher mortality rates.⁴

COVID-19 has profoundly devastating effects to global healthcare, including services related to dermatology and venereology.⁵ A several studies reported a decrease outpatient visits to dermatology clinic in several countries.^{6,7} Despite the need to physically distant and reduce outside activities, some patients with dermatologic conditions still need to visit the dermatology and venereology clinics of whom Dermatologists may find challenging.⁸ Knowledge about the pattern of geriatric patients coming to dermatology clinic during pandemic-era is important to prepare the best approach and strategy for best outcome with consideration of COVID-19 situation. To date, there is no study presenting geriatric patients visiting dermatology clinic during covid-19. Therefore, this study aims to evaluate changes trend of geriatric outpatient dermatology and

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venereology clinic in Indonesian tertiary hospital during COVID-19 era compared to the previous era in the same period.

Methods

This study was a 22-month retrospective study of geriatric outpatient in dermatology clinic in one of tertiary hospitals in Indonesia. Data were collected through health records of Dr. Cipto Mangunkusumo Hospital (RSCM). Patients were geriatric (60 years old and older) who attended Geriatric Dermatology Clinic in RSCM within two periods which were before pandemic era (May 2018 to February 2020) and during pandemic era (March 2020 to December 2021). RSCM is one of the top national referrals tertiary hospitals which located in the capital city of Indonesia, Jakarta. RSCM also a teaching hospital at Medical Faculty of Universitas Indonesia, of whom the residents can diagnose and manage the patient under supervision of national board-certified dermatologists.

For this study, the COVID-19 pandemic time is defined from March 2020 to December 2021 which reflects several outbreaks in Indonesia. We did not count January and February 2020 as pandemic era since the first confirmed case in Indonesia was in March 2020 and the policy by our government was set afterwards.

The data were analyzed using Statistical Program for Social Science (SPSS). Age, gender, total case, diagnosis, procedures, and comorbidities were recorded and served in Tables and Figure. Age was calculated as mean; meanwhile other variables are classified into categories.

This study was approved by Ethical Board of the authors’ institution with contract number KET.1027/UN2.F1/ETIK/PPM.00.02/2021.

Results

Out of 22 months in each period, we collected 3256 cases in before COVID-19 and 1745 cases in during COVID-19 period. The details of each variable were summarized in **Table 1-4**. Sociodemographic showed some changes. The mean age was older in COVID-19 era. As for

Table 1 Sociodemographic of Geriatric Dermatology and Venereology Outpatient in RSCM.

	<i>Before COVID-19</i> <i>N(%)</i>	<i>During COVID-19</i> <i>N(%)</i>
Total Case	3256	1745
Gender		
Male	1798 (55.2)	862 (49.4%)
Female	1458 (44.8)	883 (50.6%)
Age (Mean)	67.8	74.65
Registrant		
New Patient	544 (16.7)	141 (8.1)
Old Patient	2712 (83.3)	1605 (91.9)

Before COVID-19 May 2018 - Feb 2020;
During COVID-19 Mar 2020 - December 2021.

Table 2 Diagnosis of geriatric dermatology and venereology outpatient in RSCM.

	<i>Before COVID-19</i> <i>N(%)</i>	<i>During COVID-19</i> <i>N(%)</i>
Total Diagnosis	4445	2375
Dermatitis	951 (21.4)	540 (22.7)
Infection	439 (12.7)	356 (14.9)
Psoriasis	530 (11.9)	371 (15.6)
Allergic Drug Eruption	5 (0.1)	19 (0.8)
Erythroderma	91 (2.0)	21 (0.9)
Pemphigoid Bullous	35 (0.8)	43 (1.8)
Vulgaris Pemphigoid	3 (0.1)	16 (0.7)
Urticaria	24 (0.5)	8 (0.3)
Vitiligo	390 (8.8)	314 (13.2)
Dyshidrosis	25 (0.6)	3 (0.1)
Pruritus with Xerotic Skin	183 (4.1)	191 (8.0)
Insect Bite	50 (1.1)	12 (0.5)
Hypersensitivity		
Pityriasis Rubra	98 (2.2)	5 (0.2)
Prurigo Nodularis	109 (2.5)	46 (1.9)
Xerosis Cutis/Dry skin	88 (2.0)	301 (12.7)
Scar	7 (0.2)	6 (0.3)
Nail Disorder	21 (0.5)	13 (0.5)
Genital Problems	2 (0.0)	2 (0.1)
Other Non-Infectious Skin Diseases	90 (2.0)	42 (1.8)
Cancerous Skin Diseases	6 (0.1)	5 (0.2)
Non-Solid Skin Lesion	18 (0.4)	4 (0.2)
Other Immunologic Disorders	45 (1.0)	56 (2.4)

Before COVID-19 May 2018 - Feb 2020;
During COVID-19 Mar 2020 - December 2021

Table 3 Procedures done in geriatric dermatology and venereology outpatient in RSCM.

	<i>Before COVID-19 N(%)</i>	<i>During COVID-19 N(%)</i>
Gram Staining	950 (24.9)	164 (6.4)
Koh	257 (6.7)	124 (4.8)
Tzanck	18 (0.5)	N/A
Biopsy	58 (1.5)	10 (0.4)
Serology	169 (4.4)	36 (1.4)
Others	191 (5.0)	22 (0.8)
Excision	5 (0.1)	N/A
Phototherapy	531 (13.9)	491 (27)
No Supporting Examination	1640 (42.9)	973 (53.5)
Total	2179	1820

Before COVID-19 May 2018 - Feb 2020;

During COVID-19 Mar 2020 - December 2021.

Table 4 Comorbidities of geriatric dermatology and venereology outpatient in RSCM.

	<i>Before COVID-19 N(%)</i>	<i>During COVID-19 N(%)</i>
Hypertension	1628 (36.6)	815 (31.7)
Diabetes Mellitus	873 (19.6)	576 (22.4)
Chronic Kidney Disease	271 (6.1)	356 (13.8)
Cardiovascular	368 (8.3)	184 (7.1)
Others	558 (12.6)	332 (12.9)
No Comorbid	747 (16.8)	311 (12.1)

Before COVID-19 May 2018 - Feb 2020;

During COVID-19 Mar 2020 - December 2021.

gender, women patients were more prevalent than men in COVID-19 era which contradicted the former era. On the other hand, there were no changes in type of registrant.

The diagnosis among geriatric outpatients before and after pandemic were varied. Although there were 39 diagnoses, the most prevalent diagnosis for both eras was dermatitis which accounted for 21.4% before COVID-19 and 22.7% during COVID-19. The top 4 diagnoses were dermatitis, infection, psoriasis, and vitiligo in before and during pandemic era, meanwhile the 5th and the rest ranks for both eras were different.

From May 2018 to February 2020 was the before covid era, whereas March 2020. There

was a slight decrease in March 2020 which continued to a plummet in April 2020. Afterwards, a gradual increase was shown from May 2020 to November 2020, which was the peakiest of total visits in COVID-19 era. However, after hit the peak at November 2020, a significant downtrend was shown in January 2021 and continued to fluctuate until December 2021.

The percentage of procedures were done to the patients in DV clinic at RSCM were smaller than the ones who received none in before and during COVID-19. The most used procedure in both eras was gram staining.

Comorbidities among patients were collected and summarized in **Table 4**. The most common comorbid was hypertension then followed by diabetes mellitus.

Discussion

Our 22-months retrospective study showed a reduce of total visit in March 2020 to December 2022 by 46.4% (**Table 1**). This counted almost half cases reduction compared to before COVID-19 era. This downtrend was also shown in several countries, such as Turkey,⁹⁻¹¹ Poland,¹² and Thailand.¹³ This might be related to the announcement of the first COVID-19 case in Jakarta on 2 March 2020 which followed by the national health emergency announcement by Indonesian president and pandemic covid announcement by WHO.¹⁴ In result, patients were afraid getting care at the hospital which then lowered the total visit. An older mean age of the patients was shown in COVID-19 era compared to before pandemic.

In **Table 1**, the changes pattern of gender domination was seen between eras, yet the ratio approximately difference by less than 1.5 which also seen in other studies. This contradicted other study which showed women had a larger

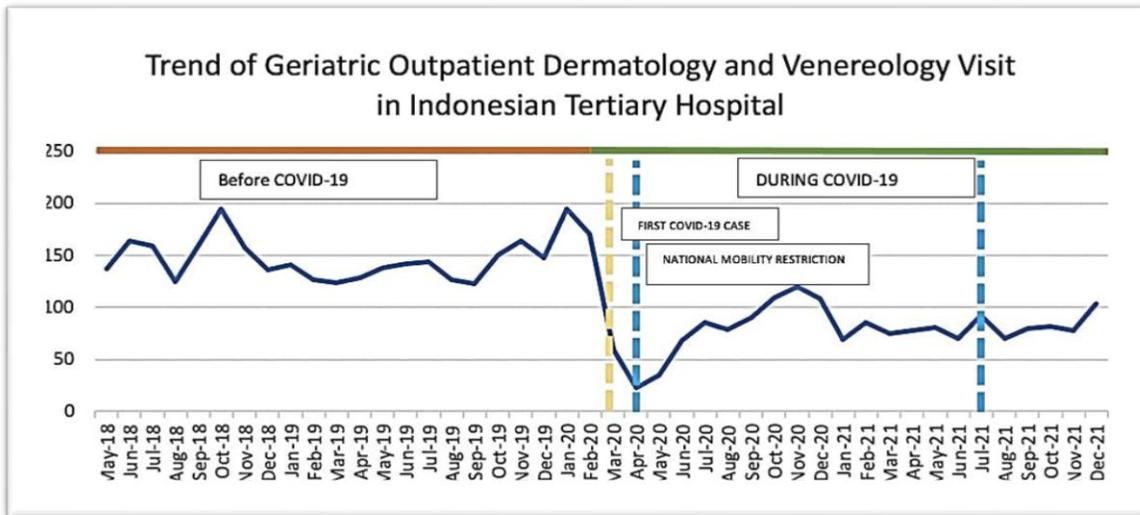


Figure 1 Trend of geriatric outpatient dermatology and venereology visit in Indonesian tertiary hospital.

share compared to men.^{13,15} On the contrary, there were no changes of pattern in new-old registrant. Both eras, the domination showed in follow-up or revisit patient since our geriatric DV clinics located in tertiary health care of which the patients needed to be referred by the first or second healthcare facility, except for those who paid out of their pocket. New patients in COVID-19 era were lower compared to former group which was in accordance with other study in England.¹⁶ This might be due to patients were afraid to come to large hospitals with a larger risk of contracting COVID-19. Our study reflected COVID-19 did not affect gender nor type of registrant who visited the clinic during pandemic.

The fluctuate trend was seen in before COVID-19 era with the peak in August 2018 and January 2020 (**Figure 1**). A plummet was shown in April 2020 which was then continued a downtrend from March 2020 after the announcement of first COVID-19 case in Jakarta, Indonesia.¹⁴ In April 2020, Government announced the first national mobility restriction which suggested people to stay at home unless emergency condition which reflected in a significant reduce.¹⁴ Although it started to climb up gradually, the total visits

never got back to the pre-pandemic period as also seen in another study.¹⁶ In July 2021 was a starting point of the delta variant wave, which affected the visits in August 2021. This delta variant cases were a nightmare for Indonesian, including healthcare facilities as the Bed Occupancy Rate in Jakarta as well as other parts in Indonesia reached the highest until the fullest.

Looking into diagnoses (**Table 2**), this research showed that dermatitis had the highest percentage in geriatric outpatient population. This result is similar to the findings of other studies conducted in geriatric population (24.2-43.7%).¹⁷⁻²² Skin infections were also found to be the second most common skin diagnoses in other studies.¹⁸ Senile patients have thinner epidermal layer and their skin could tear more easily by scratching. The broken skin barriers allow microorganisms to enter the skin. Fungal infections were the most common type of skin infection in this study.

Furthermore, in this study, dermatitis was the most prevalent case found both pre-pandemic and post-pandemic eras. A study conducted in Bangkok showed that dermatitis was the most common skin diagnosis before and after

pandemic, at 39.4% and 41.5% respectively.¹³ However, other studies conducted in Turkey showed that acne was the most prevalent diagnosis both in before and after pandemic era.^{23, 24} This difference might be caused by the difference in the research population as this study only included geriatric patients.

During the pandemic era, there proportion of dermatitis, skin infections, psoriasis and pruritus increased. These cutaneous diseases could be exacerbated by stress. COVID-19 pandemic increased the psychological stress on the human mind, thus leading to the increasing cases of these psychophysiological skin disorders. Bullous pemphigoid and pemphigoid vulgaris were also increased in the pandemic era compared to the pre-pandemic era. The negative emotional burden of COVID-19 pandemic could lead the rise of these vesiculobullous disease. Immune dysregulation and increased cytokine production lead to the exacerbation of the cutaneous manifestation of these autoimmune diseases.¹³

Xerotic skin was increased in this study, while other study showed that xerotic skin cases were reduced in the pandemic era. It is assumed that as people are given stay at home notice during those times, there would be less exposure to pollutants, ultraviolet radiation, and polycyclic aromatic hydrocarbons (PAH). Less showering and less usage of fragrances would also reduce the destruction of skin barriers.¹³ The difference in the study result might be caused by the difference in research population as geriatric patients have higher risk of having dry skin.

These common diagnoses seen in pandemic era were not emergency and low mortality which might drew our attention considering the risks they would get by visiting our hospital. Many factors contributing that decision might related to quality of life, variation of risk perception, an

increased stress burden, but those were not limited as the motivation was not similar for all diseases.

The percentages of procedures in DV outpatient were lower by approximately 11% which also seen in other study.²⁵ This might be due to restrictions of time and un-emergency visits during the first two year of pandemic. By picking and prioritizing the procedures wisely, dermatologists could have a role in flattening the epidemiological transmission curve in which by reducing contact from one to another.²⁶ The most common procedures done was gram staining which in accordance with our top 2 common seen diagnoses, dermatitis, and infection, respectively. Highlighting one of our top diagnoses was infection, gram staining is known to be widely used in most of skin infection cases.

Geriatrics usually have some comorbidities as most of our patients presented with comorbidities. We collected numerous amounts of comorbid which one had multiple comorbidities. In both group, hypertension was the most common comorbid among others, which then followed by diabetic mellitus. Our finding is similar to Tugba *et al.*²⁷ which also found the majority of geriatric patients had comorbidities. This population, who already at higher risk, carries a bigger risk caused by the comorbidities.

Our study was a retrospective study which also came with the limitations. We had no data such as detailed clinical examinations, life quality, anxiety levels, and perception about COVID-19.

This study also took place in a single center healthcare which might not reflect all of the other hospitals around Indonesia. Additional studies profiling similar term from other institutions are necessary to further corroborate

the geriatric outpatient pattern of related fields in general.

Conclusions

In conclusion, this study showed a reduction of total visit during pandemic era. From the two periods, there were changes in gender dominance, but no changes were detected in type of registrant. The most common seen diagnoses were dermatitis followed by infection for both period. Gram staining was the most used procedure at the clinic. As for comorbidities, the most prevalent was hypertension. This epidemiological data about profile of geriatric patients in dermatology clinic may serve as foundation for further study. Multi-centre study would be appropriate to be conducted in the future for more comprehensive data. In addition, new strategy approaches must be prepared in advance before another similar condition strikes in the future so that geriatrics will be able to get their skin issues checked at the hospitals.

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