DESCRIPTION OF SGPT (SERUM GLUTAMIDE PERUVIT TRANSAMINASE) LEVELS IN ACTIVE SMOKER PATIENTS AT HORAS INSANI PEMATANGSIANTAR HOSPITAL

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Abstract

Smoking has become a habit for some people in their daily lives because they follow the lifestyle of the surrounding environment. There are three dangerous substances that are most dominant in cigarettes, namely nicotine, tar and carbon monoxide. When smoking, these chemicals enter the body and if this continues continuously can cause liver damage, thereby increasing SGPT levels. This study aims to describe SGPT levels in active smokers at Horas Insani Hospital, Pematangsiantar. The research design used is descriptive. The population in this study were all active smokers at Horas Insani Pematangsiantar Hospital, totaling 36 active smokers. The number of samples in this study were 30 active smokers taken by purposive sampling. The variable in this study was SGPT levels in active smokers. SGPT level examination technique with the Kinetic-IFCC method. Data analysis was obtained through editing, coding and tabulating then analysis of SGPT levels was analyzed in percentage form. Of the 30 respondents on the results of the study it can be concluded that 21 respondents (70%) were active smokers at Horas Insani Hospital Pematangsiantar, had SGPT levels increased> 35 U/L.

Keywords:*Active Smokers, SGPT*

INTRODUCTION

Smoking is an activity that can be easily found anywhere. Smoking has become a habit for some people in their daily lives because they follow the lifestyle of the surrounding environment or as a means to escape from the problems they face. Not only parents, teenagers and even children who smoke, both men and women. Communities often serve cigarettes as a companion to food and drinks as well as part of traditional ceremonies, giving cigarettes in return is also common. The negative impacts of the habit of smoking cigarettes are numerous and unlimited (Amalia, 2017).

Based on WHO data in 2008, Indonesia as a developing country occupies the 3rd position in the world with the highest proportion of smokers after China and India. Based on a report from the Ministry of Health of the Republic of Indonesia in 2013, the proportion of smokers has reached 29.3% and this number has increased from 2010 of 28.2%. 7,8 In 2007, West Sumatra, which is also a province in Indonesia once occupied the top 5 positions with the highest number of smokers estimated at more than 1.2 million people (Roza, Oenzil and Pertiwi, 2017).

Cigarettes are paper that is rolled up in a cylindrical shape with a certain size and contains tobacco and is burned to inhale the smoke (Amalia, 2017). There are three harmful substances that are most dominant in cigarettes, namely nicotine, tar, and carbon

monoxide. When smoking, these chemicals enter the body and if it continues continuously can cause arteriosclerosis, chronic cough, and hypoxemia which is one of the factors causing myocardial infarction and carcinogenesis. (Lomanorek, Assa and Mewo, 2016).

In recent years, many studies have revealed a link between smoking and an increased risk of liver disorders. The liver or liver is a gland of the body weighing about 1-36 adult body weight. One of the functions of the liver is to protect the body against the accumulation of harmful substances that enter from outside (Syifaiyah, 2008). Although cigarette smoke does not have a direct effect on liver cells, toxic compounds absorbed from the alveoli into the blood can reach the liver and trigger irreversible damage to liver cells. The nicotine content contained in cigarettes can cause inflammation in the liver tissue (Roza, Oenzil, and Pertiwi, 2017)

One indicator of a disorder in the liver is the serum glutamate pyruvate transaminase (SGPT) level. The concentration of this enzyme will increase dramatically if several types of liver damage occur, such as viral hepatitis, alcoholic hepatitis, and liver tumors (Sari, Budirahrdjo, and Sulistyani, 2016). Based on previous research conducted by Roza, Oenzil, and Pertiwi, 2017 regarding the relationship between smoking and levels of Serum Aminotransfererase activity in office employees, it was concluded that smoking habits can cause hypertransaminaemia.

Respondents should stop smoking to prevent the bad effects of smoking on various organs of the body such as heart attacks, cancer, hypertension, pregnancy and fetal disorders and maintain a healthy lifestyle by avoiding smoking, managing diet, and exercising diligently.

Research purposes

Knowing SGPT (Serum Glutamic Pyruvic Transaaminese) levels in active smokers at Horas Insani Hospital Pematangsiantar.

LITERATURE REVIEWS

Smoke

Smoking is a process of burning tobacco which has previously been processed into cigarettes, as well as the process of inhaling the smoke produced from this combustion. While smokers have a broad meaning. Smokers are people who inhale cigarette smoke either directly or indirectly. Directly here, it means someone who smokes cigarettes because that person is indeed someone who consumes cigarettes.

Heart

The liver is the organ that is most often damaged when exposed to toxins. Toxic substances that enter the body will undergo a detoxification process (neutralized) in the liver by liver function. These toxic compounds will be converted into other compounds that are no longer toxic to the body. If the amount of poison that enters the body is relatively small or if the detoxification function is good, symptoms of poisoning will not occur in the body. However, if the poison enters the liver in large quantities it can cause damage to the microanatomical structure of the liver (Sharif, 2015).

SGPT (Serum Glutamic Pyruvic Transaminase)

SGPT is an enzyme found in liver cells. Therefore, SGPT better describes a person's liver function. When liver cells are damaged by something, whether it's a virus or other disorder, SGPT enzymes will be released from the liver cells into the blood. This enzyme catalyzes the transfer of a package of amino acids, including alanine and alpha-ketoglutaric acid. There are many in hepatocytes and the concentration is relatively low in other tissues (Rusman, 2017).

METHODS

Research design is something that is very important in research. Research design is used as a guide in planning and carrying out research to achieve a goal or answer research questions (Nursalam, 2011). The research design used in this research is descriptive research because it only wants to know the description of SGPT (Serum Glutamide Peruvit Transaminase) Levels in Active Smokers Patients at Horas Insani Hospital Pematangsiantar.

The population in this study were all active smoking patients at Horas Insani Pematangsiantar Hospital. which totaled 36 people.

RESULTS AND DISCUSSION

Contents Results and Discussion

Characteristics of Respondents

Characteristics of Respondents by Age

Following are the characteristics of respondents based on age in active smokers at Horas Insani Pematangan Hospital which are described in the table below:

Table of Respondents' Characteristics by Age

No	Age	frequency	Percentage (%)
1	30-40 years	6	20%
2	41-50 years	17	56.7%
3	51-60 years	4	13.3%
4	>60 years	3	10%
	Amount	30	100%

Source: HI Hospital in 2019

Based on the table above, it shows that the average age of 41-50 years is 17 respondents (56.7%) while the least number of respondents is >60 years old, 3 respondents (10%).

Characteristics of Respondents Based on Old Smoking

Table of Respondents' Characteristics Based on Consuming Time

No	Long Smoking	Amount	Percentage (%)
1	1-5 years	0	0%
2	>5 years	30	100%
	Amount	30	100%

Source: HI Hospital in 2019

Based on the table above shows that all respondents have smoked for more than 5 years as many as 30 respondents (100%).

Characteristics of Respondents Based on Number of Cigarettes
The following are the characteristics of the respondents based on the number of cigarettes consumed/day at Horas Insani Pematangsiantar Hospital in 2019 which are described in the table below:

Table of Respondents' Characteristics Based on Number of Cigarettes Consumed/Day

No	Number of Cigarettes Consumed/Day	Amount	Percentage (%)
1	1-10 sticks/day	0	0%
2	11-20 cigarettes/day	10	33.3%
3	>20 sticks/day	20	66.7%
	Amount	30	100%

Source: HI Hospital Data for 2019

Based on the table above, it shows that 20 respondents (66.7%) consumed cigarettes >20 cigarettes/day and 10 respondents (33.7%) consumed 11-20 cigarettes/day.

Characteristics of Respondents Based on Liver Disease History
The following are the characteristics of the respondents based on a history of liver disease in active smokers at Horas Insani Pematangsiantar Hospital in 2019 which are described in the table below:

Table of Respondents' Characteristics Based on Liver Disease History

No	Liver Disease History	Number of people	Percentage(%)
1	Yes	0	0%
2	No	30	100%
	Amount	30	100%

Source: Data from Pematangsiantar HI Hospital in 2019

Based on the table above, it shows that all respondents did not have liver disease, namely 30 respondents (100%).

Results of SGPT Levels of Active Smokers
Specific data in this study are SGPT (Serum Gutamic Pyruvic Transaaminese) levels in active smokers at Horas Insani Hospital Pematangsiantar which are described in the table below:

Table of Respondent Characteristics Based on SGPT (Serum Gutamic Pyruvic Transaaminese) Levels

No	SGPT U/L level	Number of people	Percentage(%)
1	Normal (<35 U/L)	10	33.3%
2	Increase (>35U/L)	20	66.7%
	Amount	20	100%

Source: HI Hospital Data for 2019

Based on the table above, it shows that the levels of SGPT (Serum Glutamic Pyruvic Transaminases) increased by 20 respondents (66.7%) and as many as 10 respondents (33.3%) had normal SGPT levels.

Contents of Discussion Results
SGPT levels in active smokers

In this study, there were 30 research subjects who were willing to be respondents. The results of laboratory examinations of SGPT (Serum Glutamic Pyruvic Transaaminese) serum levels increased in 20 respondents (66.7%). From these results it is known that there was damage to liver function in respondents who smoked at Horas Insani Pematangsiantar Hospital in 2019.

These results are in line with research conducted by Alhibrii Abdrabo, and Lutfi where there is a significant increase in SGPT (Serum Glutamic Pyruvic Transaaminese) that can occur in active smokers. Significantly increased levels of SGPT (Serum Glutamic Pyruvic Transaaminese) occur in heavy smokers, but not in light and moderate smokers. The toxicity of a substance is determined by the amount of exposure or the number of cigarettes consumed. The more the number of cigarettes consumed, the higher the risk of various diseases.

And this study, based on research conducted by Tanoeisan et al in 2016, showed that more than half (75%) of the samples had normal SGPT levels and were light - moderate smokers. Some (25%) samples experienced an increase in SGPT because some of these samples consumed $\geq$ 40 cigarettes every day.

According to research conducted by safithri in 2018, the liver is a large organ in the human body that has extraordinary regeneration abilities. Where this ability to regenerate occurs throughout the human age. Liver fibrosis therapy currently being developed is more focused on how to treat diseased cells/tissues based on pathogenesis and the potential for healthy cells. These healthy cells still have the potential to regenerate and repair diseased areas. If these two things can be done together, it will speed up the process of liver regeneration. When the liver is damaged by stellate cells, endogenous stem cells, Kupfer cells, will explore the contribution of hepatocytes and proteolytic enzymes to the process of homeostasis and liver repair, especially in conditions of fibrosis.

Cigarette smoke can trigger the formation of free radicals. Cigarette raw materials such as tar, nicotine and carbon monoxide are the main toxicants that can trigger the formation of free radicals. Cigarette smoke which contains chemicals will be carried to the lungs and then the bloodstream will distribute it throughout the body. One of the enzymes in the liver binds to chemicals in cigarettes and can cause cancer. This enzyme will come out of the liver cells if the liver cells are damaged so that by itself it will cause an increase in blood serum levels. Smoking causes lipid peroxidation which damages the normal cell membranes of the liver. If liver cell damage occurs, there will be an increase in SGPT and SGOT in smokers compared to non-smokers (Tanoeisan, Mewo, Kaligis, 2016).

CLOSING

Conclusion

The contents of the conclusion are written in Times New Roman 12. The conclusion is an overview based on the research that has been done. The conclusion is not a summary of the results of the discussion that refers to a particular theory, but the results of the analysis/correlation test of the data are discussed.

Suggestions and Acknowledgments (if any)

Suggestions and thanks are optional (if any), written in one paragraph with Times New Roman 12 font.

REFERENCES

Amalia, Masita, Nur., 2017, Analisa pengaruh konsumsi rokok terhadap produktivitas tenaga kerja di indonesi. Skripsi Fakultas Ekonomi Universitas Negri Yogyakarta,2017

Apriyani, S. 2011. Karakterisasi Komproses Pragelatinisasi Pati Singkong Fosfat dan Karaginan Sebagai Eksipien Farmasi. Skripsi. Fakultas Matematika dan Ilmu Pengetahuan Alam. Universitas Indonesia. Depok.

Arikunto, S., 2010 Prosedur Penelitian: Suatu Pendektan Praktik. Penerbit Yudisthira PT Rineka Cipta, Jakarta.

Arikunto, Suharsimi. 2008. Prosedur Penelitian. Jakarta: Rineka Cipta

Diana Puspitasari. 2009. Analisis pengaruh CAR, NPL, PDN, NIM, BOPO, LDR

Fathiyah Safithri, 2018. Mekanisme Regenerasi Hati secara Endogen pada Fibrosis Hati

Hidayat, Alimul. 2007. Metode Penelitian Kebidanan Teknik Analisis Data. Jakarta: Salemba Medika.

Hidayat, A., 2010. Metodologi Penelitian Kesehatan Pradigma Kuantitatif, Health Books, Jakarta.

Kendran Anak AS, Arjana Anak AG, Pradnyantari Anak ASI, 2017, Aktivitas Enzim Alanine-Aminotransferase dan Aspartate Aminotransferase pada Tikus Putih Jantan yang Diberi Ekstrak Buah Pinang, Universitas Udayana, Volume 9 No. 2: 132-138. Agustus 2017.

Kumala Sari hesty, Budirahardjo Roedy, Sulistyani Erna, 2015, Kadar Serum Glutamat Piruvat Transaminase (SGPT) pada Tikus Wistar (Rattus norvegicus) Jantan yang Dipapar Stresor Rasa Sakit berupa Electrical Foot Shock selama 28 Hari, Universitas Jember e-Jurnal Pustaka Kesehatan, vol. 3(no 2.), Mei, 2015

Laili Ulfiatul, 2013, Pengaruh pemberian temulawak (curcuma xanthorrhiza Roxb)dalam bentuk kapsul terhadap kadar SGPT (Serum Glutamat Piruvat Transaminase) dan SGOT (Serum Glutamat Oksaloasetat Transaminase) pada orang sehat Yogyakarta: skripsi jurusan pendidikan kimia Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Negeri Yogyakarta 2013.

Lomanorek Vania Y, Assa Youla A, Mewo Yanti M, 2016 Gambaran kadar serum glutamic oxaloacetic transaminase (SGOT) pada perokok aktif usia >40 tahun Manado : Fakultas Universitas Sam Ratulangi Manado . jurnal e-Biomedik (eBm) vol 4 no. 1 th 2016

Meranai puspita s. 2014, Perilaku Merokok dikalangan anak sekolah dasar (Studi Kasus : Desa Talang Pito, Kecamatan Bermani Ilir, Kabupaten Kepahiang, Propinsi Bengkulu). Fakultas ilmu sosial dan ilmu politik universitas Bengkulu 2014.

Notoatmojo, S., 2010 Metodologi Penelitian Kesehatan Rinek cipta. Jakarta.

Nursalam. (2014). Manajemen keperawatan aplikasi dalam praktik keperawatan profesional edisi 4. Jakarta: Salemba Medika.

Nursalam. 2011. Konsep an penerapan metodologi penelitian ilmu keperawatan. Jakarta : Salemba Medika

Nursalam. 2008. Konsep dan Penerapan Metodologi Penelitian Ilmu Keperawatan. Jakarta: Salemba Medika

Roza Yelpi Novita, Oenzil Padil, Pertiwi Dian, 2017 Hubungan antara merokok dan tingkat aktivitas aminotransferase serum pada pegawai kantor. Padang: Fakultas Kedokteran Universitas andalas padang, Jurnal Kesehatan Andalas, 2017.

Rusman, 2017, gambaran sgot dan sgpt pada penderita demam berdarah di rumah sakit Columbia asia medan: skripsi fakultas biologi universitas medan area medan 2017.

Sapna meizun, 2016, kadar kalsium darah pada perokok aktif (studi di RT 04/RW 02 Dusun Candimulyo Kecamatan Jombang Kabupaten Jombang. KTI Program studi diploma III Analis kesehatan insan cedekia medika jombang 2016.

Simarmata Sondang, 2012, perilaku merokok pada siswa-siwi madrasah tasnawiyah negri model kuok kecamatan bangkinang baret kabupaten Kampar provinsi riau: skripsi fakultas kesehatan masyarakat program studi serjana kesehatan masyarakat depok juni 2012.

Sirih Gabrielle E. . Engka Joice N. Sylvia R. Marunduh SylviaR. 2017, Hubungan Merokok dan Kadar Leukosit pada Perokok Kronik, Manado: Fakultas Kedokteran Universitas Sam Ratulangi Manado Jurnal e- Biomedik (eBm), Volume 5, Nomor 2, Juli-Desember 2017

Syarif Edan Jayati, 2015, visualisasi deposit logam berat timbel (pb) pada organ hati ikan bandeng (chanos-chanos) dengan pewarnaan rhodizonate melalui metode histoteknikMakasar : Skripsi fakultas kedokteran universitas hasanudin makasar 2015

Syifaiyah Baiq, 2018, pengaruh pemberian ekstrak daun pegagan (centela asiatica) terhadap kadar sgpt dan sgot hati mencit (mus musculus) yang diindukasi dengan parasetamo, Malang: .Fakultas sains dan teknologi universitas islam negri malang 2018

Tanoeisan Angelina P. Mewo Yanti M. Kaligis Stefana H.M. 2016, Gambaran kadar serum glutamic pyrupic transaminase (SGPT) pada perokok aktif usia > 40 tahun,Manado: skripsi Fakultas Kedokteran Universitas Sam Ratulangi Manado.

Yulisa Tria, 2014, pengaruh ekstrak daun honje (Etlingera hemisphaerica) terhadap morfologi hati dan ginjal mencit (Mus musculus) akibat toksisitas merkuri klorida (HgCl2) serta implementasinya sebagai media pembelajaran biologi SMA 2014, Bengkulu: Skrifsi Fakultas keguruan dan ilmu pendidikan Universitas Bengkulu 2014.

DESCRIPTION OF SGPT (SERUM GLUTAMIDE PERUVIT TRANSAMINASE) LEVELS IN ACTIVE SMOKER PATIENTS AT HORAS INSANI PEMATANGSIANTAR HOSPITAL

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