

STIKES NOTOKUSUMO YOGYAKARTA



CHRONIC DISEASES CONCEPT

# MAJOR RISK FACTOR for chronic diseases

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# DIABETES MELLITUS

- Diabetes Mellitus (DM) is a chronic metabolic disorder caused by the pancreas not producing enough insulin or the body not being able to use the produced insulin effectively. As a result, there is an increase in glucose concentration in the blood or hyperglycemia.
- Diabetes Mellitus is known as a silent killer because it is often unnoticed by those who have it, and by the time it is detected, complications have already occurred.



# HYPERTENSION

- Hypertension is a condition where blood pressure in the arteries consistently exceeds normal limits. This condition is characterized by systolic blood pressure (when the heart pumps)  $\geq 140$  mmHg and/or diastolic blood pressure (when the heart rests)  $\geq 90$  mmHg.
- The diagnosis of hypertension is made when the average of 2 or more diastolic BP measurements on at least 2 subsequent visits is  $> 90$  mm Hg or when the average of multiple systolic BP readings on 2 or more subsequent visits is consistently  $>140$  mmHg.





# MAJOR RISK FACTOR OF DIABETES MELLITUS AND HYPERTENSION

01

## OBESITY AND ABDOMINAL OBESITY

Obesity and abdominal obesity increases the risk of Diabetes Mellitus (DM) and hypertension. Define overweight as a body mass index (BMI)  $\geq 25$  and  $< 30$  kg/m<sup>2</sup> and obesity as a BMI  $\geq 30$  kg/m. BMI is strongly correlated with percent body fat.

02

## TOBACO USE AND CIGARETTE SMOKING

Tobacco use and cigarette smoking increases the risk of Diabetes Mellitus (DM) and hypertension. Risk also increases with increasing duration of use and with greater intensity of smoking, as measured by the number of cigarettes smoked per day.

03

## PHYSICAL INACTIVITY

Physical inactivity is an established risk factor for Diabetes Mellitus (DM) and hypertension. Physical activity  $\geq 150$  min/week was associated with a lower risk of Diabetes Mellitus (DM).



# MAJOR RISK FACTOR OF DIABETES MELLITUS AND HYPERTENSION

04

## UNHEALTHY DIET

Higher consumption of Ultra-Processed Food (UPF) is associated with increased risk Diabetes Mellitus (DM) and hypertension. Diets of poor quality are low in whole grains, fruits, vegetables, legumes, fish, and nuts and high in animal-source foods, salt, processed grains, and added sugars.

05

## PSYCHOLOGICAL AND EMOTIONAL STRESS

Maladaptive coping strategies, anxiety and depression, workplace stress, posttraumatic stress disorder have been identified as relevant psychological factors in Diabetes Mellitus (DM) and hypertension.

Adverse childhood experiences are linked to a reduced quality of life and have been identified as significant risk factors for the development of acquired Diabetes Mellitus and hypertension.

06

06

## GENETIK / FAMILY HISTORY

One of the risk factors for Diabetes Mellitus is genetics. It is required of people over 45 years old to lead healthy lives, eat less meals high in fat and carbs, exercise often, and regularly check their blood sugar levels, particularly if they have a family history of diabetes mellitus.

# STROKE



- Stroke is a cerebrovascular disease caused by the death of brain tissue, occurring due to reduced blood flow and oxygen to the brain.
- The decrease in blood and oxygen flow to the brain can be caused by a blockage, narrowing, or rupture of blood vessels. Stroke is classified into two categories, namely hemorrhagic stroke due to the rupture of blood vessels in the brain and non-hemorrhagic stroke due to the presence of a thrombus or embolus in the blood vessels of the brain.



# MAJOR RISK FACTOR FOR STROKE



## HYPERTENSION

The diagnosis of hypertension is made when the average of 2 or more diastolic BP measurements on at least 2 subsequent visits is  $> 90$  mm Hg or when the average of multiple systolic BP readings on 2 or more subsequent visits is consistently  $>140$  mmHg.

## HYPERCHOLESTEROLEMIA

- Hypercholesterolemia is a major risk factor for cardiovascular disease. Hypercholesterolemia is a condition when the total cholesterol in the blood circulation exceeds normal levels. Normal total cholesterol values in humans is  $<200$  mg/dL.
- Hypercholesterolemia is also defined when the level of the low-density lipoprotein (LDL) fraction increases beyond normal limits and the level of high-density lipoprotein (HDL) decreases





# MAJOR RISK FACTOR FOR STROKE



## DIABETES MELLITUS

- Diabetes Mellitus is a chronic, progressive metabolic disorder characterized by persistent hyperglycemia, arising from defects in insulin secretion, insulin action, or both.
- Hyperglycemia is an increase in blood glucose levels. An increase in blood glucose levels will increase blood viscosity, meaning the blood becomes thicker and flows more slowly.
- Thicker blood can increase pressure on blood vessels, which can lead to hypertension. Increased blood viscosity can also raise the risk of blood clot formation (thrombosis) and blood vessel blockage, which can lead to a stroke.

## TOBACCO USE AND CIGARETTE SMOKING

- Tobacco use and cigarette smoking increases the risk of stroke.
- The chemicals contained in cigarettes, such as nicotine and carbon monoxide, can increase the risk of stroke because they damage blood vessels and raise blood pressure.



# MAJOR RISK FACTOR FOR STROKE



## OBESITY AND ABDOMINAL OBESITY

Obesity and abdominal obesity increases the risk of Stroke. Define overweight as a body mass index (BMI)  $\geq 25$  and  $< 30$  kg/m<sup>2</sup> and obesity as a BMI  $\geq 30$  kg/m. BMI is strongly correlated with percent body fat.

## PHYSICAL INACTIVITY

Physical inactivity is an established risk factor for Stroke. Physical activity  $\geq 150$  min/week was associated with a lower risk of Stroke.



# MAJOR RISK FACTOR FOR STROKE



## UNHEALTHY DIET

Higher consumption of Ultra-Processed Food (UPF) is associated with increased risk Diabetes Mellitus (DM). Diets of poor quality are low in whole grains, fruits, vegetables, legumes, fish, and nuts and high in animal-source foods, salt, processed grains, and added sugars.

## PSYCHOLOGICAL AND EMOTIONAL STRESS

- Maladaptive coping strategies, anxiety and depression, workplace stress, posttraumatic stress disorder have been identified as relevant psychological factors in Diabetes Mellitus (DM).
- Adverse childhood experiences are linked to a reduced quality of life and have been identified as significant risk factors for the development of acquired Diabetes Mellitus (DM).



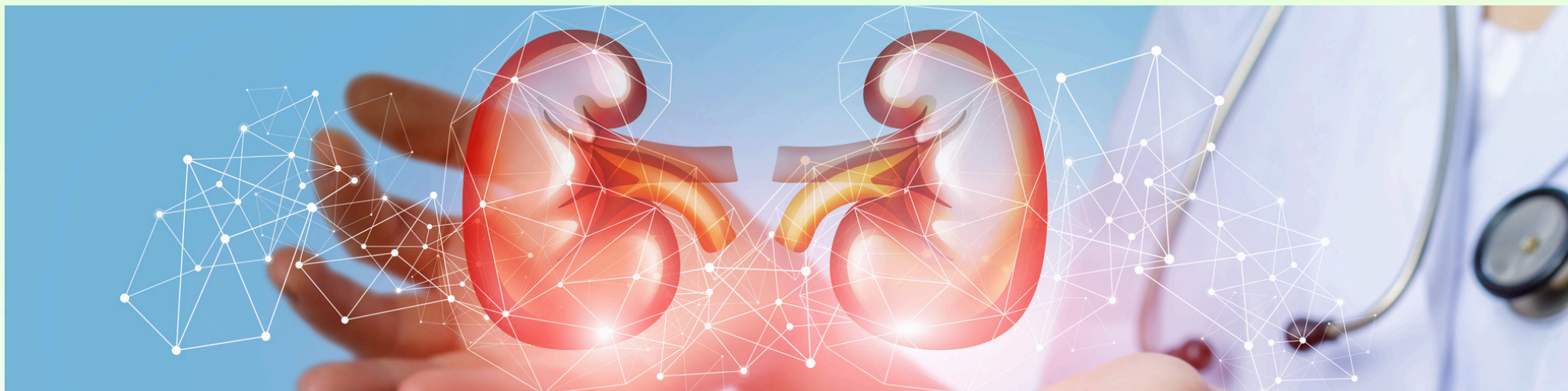
# CHRONIC KIDNEY DISEASES (CKD)

- Chronic Kidney Diseases (CKD) is a condition characterized by a gradual, progressive, and irreversible decline in kidney function.
- Chronic Kidney Diseases (CKD) causes the kidneys to be unable to filter waste and fluids properly from the body.





# MAJOR RISK FACTOR FOR CHRONIC KIDNEY DISEASES (CKD)



## UNCONTROLLED HYPERTENSION

Tekanan darah tinggi yang terus-menerus dapat menyebabkan pembuluh darah di ginjal, terutama glomerulus menjadi tebal, sempit, dan kaku.

Kerusakan pembuluh darah ini mengganggu kemampuan ginjal untuk menyaring limbah dan cairan berlebih dari darah.

## HIGH BLOOD GLUCOSE LEVEL

Hiperglikemia menyebabkan secara kronis merusak pembuluh darah kecil (mikrovaskular) di ginjal.

Kerusakan ini disebut **nefropati diabetik**, yang merupakan komplikasi diabetes yang serius dan dapat menyebabkan gagal ginjal kronis.

## TOBACO USE AND CIGARETTE SMOKING

Nikotin dan zat berbahaya lainnya dalam rokok menyebabkan penyempitan pembuluh darah pada ginjal.

Kandungan rokok juga memperlambat aliran darah ke ginjal, yang dapat mengurangi kemampuan ginjal untuk menyaring racun dan zat sisa dari darah.



# KANKER

- Kanker disebabkan oleh pertumbuhan sel yang tidak normal dan tidak terkendali.
- Sel-sel kanker dapat menyebar ke bagian tubuh lain melalui aliran darah atau sistem limfatik (metastasis).





# MAJOR RISK FACTOR OF CANCER

01

## OBESITY AND ABDOMINAL OBESITY

Obesity and abdominal obesity increases the risk of cancer. Define overweight as a body mass index (BMI)  $\geq 25$  and  $< 30$  kg/m<sup>2</sup> and obesity as a BMI  $\geq 30$  kg/m. BMI is strongly correlated with percent body fat.

02

## TOBACCO USE AND CIGARETTE SMOKING

Tobacco use and cigarette smoking increases the risk of cancer. Risk also increases with increasing duration of use and with greater intensity of smoking, as measured by the number of cigarettes smoked per day.

03

## PHYSICAL INACTIVITY

Physical inactivity is an established risk factor for cancer. Physical activity  $\geq 150$  min/week was associated with a lower risk of cancer.

# MAJOR RISK FACTOR OF DIABETES MELLITUS AND HYPERTENSION

04

## UNHEALTHY DIET

Higher consumption of Ultra-Processed Food (UPF) is associated with increased risk cancer. Diets of poor quality are low in whole grains, fruits, vegetables, legumes, fish, and nuts and high in animal-source foods, salt, processed grains, and added sugars.

05

## VIRUS EXPOSURE

### Human Papillomavirus (HPV)

Paparan virus HPV berisiko tinggi dapat menyebabkan kanker serviks.

### Virus Hepatitis B (HBV) dan C (HCV)

Infeksi kronis HBV dan HCV dapat meningkatkan risiko kanker hati.

### Virus Epstein-Barr (EBV)

Paparan virus EBV berisiko tinggi menyebabkan kanker limfoma, baik hodgkin dan non hodgkin.

06

## GENETIK / FAMILY HISTORY

One of the risk factors for cancer is genetics.

# TERIMA KASIH

