

Thank you for visiting public lectures.

I am Takashi Ando, doctor of Kawasaki municipal hospital.

Today's theme is "What is hypertension or high blood pressure?"

Now, think about stress free life, 1,700km south of Kawasaki, there is a small island in a beautiful coral reef.

If you live a relaxing life on a tropical island like this, your blood pressure won't rise.

I had the opportunity to work as a ship doctor on Japan's southernmost island.

Living in a warmer climate doesn't necessarily mean you'll be healthier or have lower blood pressure. The reason we were able to live comfortably on this small island was because we were provided with delicious food and had access to electricity and water.

I was the only doctor at sea, so even if I am an physician, if there's an injury, I'll have to stitch it up. Basically, I worked 24 hours a day, 7 days a week.

Maslow's hierarchy of needs states that once physiological needs such as water and electricity are met, then next is safety needs like emergency care and transportation, and then social needs, approval needs, and finally self-actualization needs.

As expected, we were not allowed to take our pets on the ship, but in case of an emergency, we could transport them by the helicopter, so our safety needs were ensured on the ship.

In other words, physiological needs such as eating and drinking as well as a favorable climate, then the desire for safety, such as not being attacked by other countries and having a doctor available in case of an emergency,

The last desire is got only by mutual respect, and then self-actualization.

It is true that a stress-free lifestyle may reduce blood pressure. However, our daily lives do not revolve solely around blood pressure.

In our daily activities, we may enjoy relaxing by eating delicious food or playing with our pets, but at other times we may face unpleasant or difficult situations, which can cause our blood pressure to rise. That's what I'm experiencing.

However, if we consider such stress in the context of our whole lives, we find that it enriches our lives through the connections with other people. This kind of balance is most important.

Sorry for long introduction, today's story is about high blood pressure. Appropriate blood pressure targets vary depending on age, presence of coexisting diseases, but include those over 140 or 90 in the doctor's office, and those of over 135 or 85 at home. In fact, one-third of all Japanese people are said to have high blood pressure.

Although not many people have high blood pressure from a younger age, more than 40% of men in their 40s and women in their 50s exceed this standard. When people reach their 60s and 70s, the number of people with high blood pressure increases, and those without high blood pressure become a minority.

The big problem here is that there are many patients who do not know their own blood pressure, do not recognize that they have high blood pressure, do not receive treatment, and do not take enough medication. In other words, many people do not have their good blood pressure control.

So today, I would like to start by talking about what blood pressure is.

There are similar words for blood pressure, such as voltage and water pressure.

In all cases, these pressures are determined by flow and resistance, and the product of these is the pressure. By maintaining the BP, blood is transported to all the organs in the body. Blood vessels constrict and the flow channels become narrower, making it harder for blood to flow. If the resistance increases, blood pressure will rise. Also, if there is a lot of flow, this will also raise blood pressure.

First, let's consider blood flow.

As blood flow increases, blood pressure rises.

So what determines the amount of blood flow? We take salt in our daily meals. In fact, taking too much salt increases the amount of blood stream in your body.

Conversely, most Yanomami people in the Amazon who take only small amount of salt, do not have high blood pressure.

So, should we aim to live like the Yanomami in the Amazon? I do not think so. We can learn a lot from the Yanomami people, and \*more salt intake will raise BP. However, modern Japanese people live longer lives than the Yanomami people.

Of course, salt restriction for BP is important, but we should also consider other things; balance is important.

Even if you say that you don't drink water to avoid increasing blood flow, it's not possible.

First, salt makes you thirsty due to the function of the thirst center in your head.

Even if you try hard not to drink water, your pituitary gland hormones and kidneys will still work to regulate your urine output to prevent your body from becoming too concentrated.

As a result, blood flow increases and blood pressure rises.

Patients often tell me that I do not take much salt, but how many grams of salt do you take a day? Even if I ask patients, no one will give me a correct answer.

Most of the salt taken by mouth is usually excreted in the urine. Therefore, you can measure your salt intake by storing your urine throughout the day. If you are having a hard time figuring out how much salt take, you can calculate your salt intake based on your urine when you visit the clinic. If you have a family doctor, please consult with your doctor. If you find that you are taking more than 6g, try devising lifestyles to reduce your salt intake to 6g.

Let's consider vascular resistance, another cause of hypertension.

What causes blood vessels to constrict or not dilate?

It's true that when you're nervous, your blood pressure rises. It seems quite difficult to imagine a stress-free life these days, but if stress increases vascular resistance and blood pressure throughout the day or even when you're sleeping, that's no good.

BP also increases during exercise, but many studies have reported that daily exercise lowers vascular resistance and lowers usual blood pressure.

When blood vessels become hard due to smoking or aging, the walls of the blood vessels become stiff and cannot expand. This arteriosclerosis progresses with age, so in a sense we have to accept that vascular resistance and gradual rise with aging.

There are still many things that are not understood about the mechanism of hypertension, but today I explained the causes by dividing into blood flow and vascular resistance. Blood vessel resistance become stiffer and more difficult to dilate as we age, meaning that we have to accept areas where blood pressure increases.

Lastly, I would like to share with you the words of Niebuhr. He asked for three things to God.

First, serious heart toward things that cannot be changed he wants.

Second, the courage to change the things that need to be changed he wants.

Thirdly, the intelligence to distinguish what cannot be changed and what should be changed.

There are some causes of hypertension that progress irreversibly with age, and not all hypertension can be cured without medication. In that sense, we need to accept the unchangeable flow of time.

On the other hand, it is possible for us to change daily lifestyle habits, such as quitting smoking and not eating too much to avoid gaining weight, salt intake limitation to 6g. I think we should strive to acquire the intelligence to distinguish between things that we must accept, which cannot be changed, such as getting older, and things that we must have the courage to change, such as bad lifestyle habits.

In this world, the healthiest people do not live the longest. There are some people who appear to be healthy but lose their health quickly.

The key to survival is adapting to changes in your current situation.

From the days when there was no preservation technology and food was preserved by increasing the salt concentration, we now live in an era where food can be refrigerated and frozen. Salt restriction is easier than before but stress control harder on the other hand.

By all means, everyone should understand the causes of high blood pressure and try to lower it to a good level.

Finally, a summary. The average lifespan of Japanese people is increasing year by year, and as we get older, our blood pressure increases, with one in three Japanese people having high blood pressure.

I explained that the main causes of this hypertension are the increase of blood flow or resistance in blood vessels.

Although it can be said that high blood pressure cannot be helped because blood vessels harden with age, there are lifestyle changes that can be made if you have the courage to do so.

Please have the courage to lower your blood pressure and live a long, healthy and happy life!

Thank you for your attention. This concludes today's lecture.