

How does air pollution impact children?

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Rakesh Kamal (Host): Hi, this is Rakesh here, your host for climate emergency. On world pneumonia day, We bring this special episode which looks at the impact of air pollution on your health. But most importantly, those of our children I interviewed Dr. Anupam Sachdeva. Chairman department of pediatric and chairman of academics at Sir Ganga ram Hospital in Delhi. I was at Sir Ganga ram hospital a couple of times and it is crowded with patients and children suffering from Air Pollution. The interview was recorded with Dr Anupam in the hospital. So you might hear a vocational child crying in the background or a couple of doctors talking.

Host: So, sir I mean this year thankfully, the pollution in Delhi peaked then came down fast because of the weather conditions that prevailed. But how our children I mean how is air pollution and pneumonia-related? That is one burning question I wanted to talk with you today. So if you could explain how air pollution and pneumonia-related?

Dr Anupam (Guest): The relationship is two types. One is that when you have air pollution, you are more prone to pneumonia, okay, to infections by bacteria, viruses, etc. Now, if you have pneumonia, in polluted air you are more prone to a severe form of pneumonia. So your chances of getting hospitalized, getting into hospitalization and getting sicker is much more than there is every air pollution added on to pneumonia.

Host: So I know that children under five are the most vulnerable. And they don't necessarily wear masks and with pollution set it peaks. How should children take care of a problem like this?

Guest: You know, when you're talking about the factors, which can sort of modify pneumonia, make it more severe or mitigate the effects of pneumonia. The factors will be good nutrition, okay, good clean air. Okay, then immunity against certain bacteria and certain viruses. For example, if you are immunized against Haemophilus influenza, you don't get that pneumonia. If you are immunized against pneumococcal just don't get pneumonia by Pneumococcal. If you are immunized against measles, measles is a major factor towards A) Malnutrition. Number two, to lead to pneumonia with some of these dreaded bacteria. So it's very important that what they can do is get themselves immunized and get better nutrition. And then, of course, you know, mitigation of air pollution is not in their hands, but certainly, we can have better indoor conditions in our houses if it is possible. But I mean, I'm being very candid. What about the poorer sections of the society, they really don't have any protection except for giving a little better nutrition and immunization. But there is no way we can prevent or decrease the air pollution in their small houses.

Host: Yes, I agree. But even with the middle class or you know, the richer section of the population, they everyone's buying air purifiers, indoor air purifiers. How effective are these?

Guest: They are effective. It's not that they're not effective. But how much time do you can't separate out into the house by saying this thing that there's no pollution and all? The only thing you can do is that for eight to 10 hours, which they are at home, sleeping, that's the time and you have I mean, I have a colleague of mine who the other day was saying that he had put on an air purifier in the house. And as it moves it, you know, as it cleans up, the air returns from blue to orange to red. Everything moves from red to orange to blue. Now, he said that when he got up in the morning it was blue. And the moment he opened the door of the bedroom, it suddenly turned red. So that shows that how bad is the air pollution in our country that even in your bedroom, from the bedroom to your other parts of the house, the air differences, the coalition in the air is so bad that GPB your air purifiers started saying that the air is really bad. So I mean, I think these are individual efforts, which make up for a very minuscule amount of exposure to air pollution. What we need to do is more at the governmental level, more at the societal level, rather than anything else.

Host: How much children's lung development gets affected because of air pollution. Are you starting to see more cases of it?

Guest: Definitely there is an increase in the incidence of asthma, there's an increase in the incidence of chronicity of asthma, there's an increase in the severity of a I mean, the we have started seeing patients have asthma which may require even ventilation to sort of sort them out. So we do see the impact of these particles will be felt maybe not today, but five or 10 years down the lane when lungs are so damaged that you know, they start showing signs and symptoms of chronic lung disease early on in life as compared to older age groups when they started. Don't forget that the air is the dirtiest next to the ground. Okay, since it is dirtiest next to the ground. The children are the nearest to the ground and when they are nearest to the ground. Yeah. More liable to inhale, these dust particles and other particles more frequently. Also, don't forget, per kilogram body weight, a child breathes in more air much more, even five to 10 times more than an adult per kilogram body. So, what happens is that this air which goes in the deposits all these particles into the body, in the lungs, and not only in the lungs, people are concerned about 2.5 microns, and even more concerned about one-micron particles, which will bypass the lungs, which will go through the lungs into the bloodstream and will go and cause damage to all parts of the body, including neurodevelopmental damage and other damages. So it's, it's important that we start taking action again. The action has to Multifold. For example, I mean, we are talking both in Delhi odd-even, but we have yet not put in a good transport system public transport system, if we put in a good public transport system, it will make an impact, because then you can go on to odd even for the two-wheelers, which are a major contributor to infection in the number two better fuel this thing If you go around on the roads of Delhi or any other town in India, the all the construction material is lying on the footpaths and it is being sold from the other there's no cover for it and nobody tries to reduce it. You want to be a dealer in the sand and

this thing just to put a chest dump of your stuff on the footpath and start selling it from there. So I think we need to take action at every level and then we may have been able to prevent some of our population from moving on from moving back to buses from their private vehicles. Similarly, as I say that burning of crops is a localized one-month phenomenon which is the worst month to have it because the weather is such that the winds are not there and if the wind is not there, it tends to sort of accumulating there itself. We need to provide farmers or empower our farmers that they should not burn crops, burn the stubble, The poor farmers take care of the stubble without support from the government. It's just not possible. So, then what about the garbage? What about the other things which lead to cancer construction activity, there are norms for construction This thing we have to say that you must have a covering of the construction sites, But how many times is it? Is it you know, being done. So, unfortunately, our country's rules and regulations are there, but they are there only to disobey and not to obey.

Host: We slightly spoke about, you know, the relationship between air pollution and pneumonia, especially in kids because kids other I mean, it's one of the leading diseases that is killing kids in the country. But what are the other kinds of lung-related problems that we're starting to see now, which you did not earlier?

Guest: It is also known to cause, you know, cancers you're seeing, for example, lung cancers much earlier in the adult age in the adult. In young adults, we have started seeing cancers, even in those who are not smoking. So that shows that there is something going wrong somewhere. I mean, I mean, I've seen, I know patients who are ladies in the age group of 30-35, who have developed lung cancer, you know, even though they were not smoking for that's another area, then the neural developmental outcome is first in those who are exposed to air pollution. Similarly, the presence of benzene in the air can cause or will lead to leukaemia. It's a known carcinogenic and leukemogenic chemical, and that is quite prevalent in our atmosphere, the benzene.

Host: And sir, I was also reading somewhere about the relationship between air pollution and TB. Would like to add anything to that?

Guest: Tuberculosis is a disease, which is more common in the slum areas where there is an increased incidence of the disease and it is exacerbated with air pollution. So, your severity of tuberculosis, as I said that any severity of any pneumonia will go up. And the more crowded areas you are in more are your chances of catching tuberculosis. So, it's very important that you know, the more you get out of crowded areas, which again is not possible for the people who are from the low socioeconomic status, time back people, when they were no drugs available for tuberculosis people used to move to the sanatoria which were in the hills with pristine air available. So that was quite fun. Appropriate because if you are polluted your chances of recovering from the work process goes down.

Host: What are some things that water main precautions that people should take? I mean you spoke about taking the vaccination as one part of it for better nutrition and what else

can people do? When it is when children especially who have holiday are staying at home because of air pollution, which is that they should do to make sure that it is less?

Guest: Okay. But another area which the mothers can help the children is if they will give exclusive breastfeeding for six months, which leads to better immunity in the children and continue breastfeeding with complementary feeding till about two years of a zone of age. So that will help by passing on the immunity from the mother to the children so they're less prone to infections and pneumonia. Another area you need to look at is to reduce the indoor air pollution if you can, and we told you about how to go about it, then you know, we have to also look at this thing that when there is caution when the air quality is really bad, then the children should not be exposed to it. They should have them off from school and from playing outside in the air in the, you know, fields etc. It's very interesting that people go for morning walks, but the pollution is maximum in the morning and evening times because that's when the air is denser and it settles down and it's more people are more exposed to these air pollutants.

Host: I don't know I don't think you'll remember this, but I have met you once when I was in Delhi. In fact, with my daughter that is one of the reasons actually we moved back to Hyderabad because my daughter was starting to cough horribly in the night and her immune system was going down. So, we moved to Hyderabad.

Guest: Yeah, I have two of my daughters sitting here with me who are from Hyderabad.

Host: Oh great, that is great.

Guest: They have moved from Hyderabad to Delhi to look after children who get sick with the air pollutants and Delhi itself. And one of them has left the kids as you know, back at home only in Andhra Pradesh rather than bringing back here. People have now started thinking whether it's worth staying in a city like this but then even can't unfortunately, it's a pan India phenomenon. It's not Delhi specific problem Delhi specifically because Delhi is the talking point. But otherwise, it's a pan Indian rather pan North India phenomenon.

Host: Are you starting to see children coming from other states across North India too?

Guest: Oh, yes. A lot of patients.

Host: Mainly from cities?

Guest: Yeah. Yeah. Unfortunately, we are not only spoiling our health, but we're spoiling the health of our future generations also. In fact, there is a thing known as Sudden infant death syndrome that incidents are also going up because of and there's an association of air pollution with that, WHO recently had, you know, done a study and they found these Pm 2.5 and lessen the placenta of the children delivered So, we now know that the crossover from the lungs into the body of the mother, and from there they can go from the placenta to the baby also, you're not even, you know, it's, it's not that you are exposing a child to the air pollution you are exposing the fetus also to Air Pollution.

Host: That's unfortunate, but even before the kid is born, he's affected.

Guest: Absolutely. Seeing some of these pollutants, Chemicals in the air can affect the gonads also, they can affect the germ cells over and the sperms. So even before the child is conceived, you may damage the child's health by causing changes in gene mutations in the Ova and Sperms and that is one of the causes of the increased incidence of leukaemia in children.

Host: Is there anything else that you would like to I might have not asked you specifically?

Guest: So, my advice is that the time to talk is over. It is time to act. And we have to give a clarion call, clarion call for action. I think we're spending too much time discussing things and not, you know, taking action. Unfortunately, that is a problem in our country that you know, as I said, Let's, when there's a meeting of 12 hours or so, at the end of the meeting, we are told, that's right, the minutes of Hours wasted. So we don't want to waste any more hours discussing these things. We need to get into action and start taking action, both at the individual level and at the societal level. And at the governmental level. All three people. All three segments have to agree together to reduce the permission, the individual, the society, and the government.

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