**Medical Insider COPD Podcast Season 4 Episode 6**

**The role of active smoking in the management of COPD**

Richard: [00:03]

This podcast is intended for healthcare professionals outside the United Kingdom and the United States only. Welcome to the Medical Insider COPD by Boehringer Ingelheim, a podcast offering a breath of fresh air to clinicians treating COPD across the globe. My name is Dr Richard Russell, I'm Consultant Chest Physician at Lymington New Forest Hospital in the United Kingdom, a Senior Clinical Researcher at the University of Oxford. I'm also Editor-in-Chief of the *International Journal of COPD*. I'm your moderator host for this season Medical Insider COPD Podcast. I'm here to bring you news and insights in COPD, right from the source, directly to you. So, thank you for joining us today. Be sure to subscribe and follow Medical Insider COPD, to ensure you do not miss any of the exciting podcast in this series.

Today, we're going to delve into a publication, which I'm really interested by, and I think is worth reading, it's entitled ‘Air Quality in Mexico City During the COVID-19 Lockdown Possibly Decreased COPD Exacerbations.’ We'll also look at an interesting and emerging topic on social media once again, looking at singing and lung health and COPD. But first, I'm delighted to introduce today's guest, who is going to be with me to discuss the topic of smoking, active smoking, and the management of COPD. So welcome Professor Surya Bhatt, from the University of Alabama, Birmingham in the United States.

Surya: [01:38]

Hi, Richard. Thank you for having me on the podcast. I'm Surya Bhatt. I'm an Associate Professor of medicine at the University of Alabama at Birmingham in the United States. My clinical and research interests are all things COPD with a special interest in lung imaging, respiratory epidemiology, and clinical trials.

Richard: [01:55]

And you’re also the director of the UAB telehealth pulmonary rehab program as well, aren't you?

Surya: [02:01]

That's right.

Richard: [02:02]

Fantastic. So clinically grounded, working hard and also researching hard. Let's talk about active cigarette smoking and both its effect on patients and the effect very much on the treatment that we give patients. Tell me a little bit about that and how you think that may affect what we do with our patients?

Surya: [02:18]

Well, cigarette smoking is the number one leading cause for COPD. And it is not only associated with the causation but has significant impact we see now on the presence of active symptoms, and the response to therapy as well. And this has been shown for several different kinds of treatments, anti-inflammatory treatments, especially for inhaled corticosteroids.

Richard: [02:40]

We'll come back to that, and I think pick up that as a particular theme from this. But let's talk about smoking for a moment. Tobacco smoking, as we've known about for many years is extremely harmful to lungs. But would you comment also, not just on tobacco, but also marijuana becoming more of a topical issue, particularly United States and also vaping?

Surya: [02:56]

Sure. Yeah. I think cigarette smoking is, you know, the leading cause. Although the proportion of cigarette smokers has gone down. The absolute numbers continue to increase worldwide. Marijuana smoking, the evidence for its association with COPD is not very clear. There are some large case series, which showed that there is some evidence that it may be associated with bullous emphysema. But I think the jury's still out as to whether it's associated with COPD by itself, independent of smoking. E-cigarettes are the new problem. This is increasingly being picked up by high school and middle school students. And again it is likely very harmful to the lungs. There is association with increased lung inflammation and airway disease in animal studies and some epidemiologic studies now. I think we don't know the long-term effects. So, it's too early to say whether it will result in COPD, but possibly so, yeah.

Richard: [03:46]

Yeah, thanks. I mean, would you agree with me that in general, breathing anything else other than air into your lung is probably not very good?

Surya: [03:55]

I think we would all agree on that. I think the problem with E-cigarettes also is that it's highly unregulated. So, it's not just nicotine, which causes the addiction, but there are thousands of other substances in E-cigarettes, which are all different, by the way, and many of them have been found to be or thought to be carcinogenic. So, I think there are lots of downsides to E-cigarettes.

Richard: [04:13]

The other thing I want to touch on which we have done on previous podcasts a little bit are the countries other than the developed world, biomass, fuel exposure and air pollution being particular issues, and I'm going to pick that up on the paper. But what do you think about that and COPD, and what can we do to help with that?

Surya: [04:28]

I think we're increasingly recognising that COPD is not just due to cigarette smoking. Already, we know, even in developed countries that about one-third of COPD patients have never smoked, and we're increasingly recognising that there are lots of other risk factors and some of the more obvious ones are environmental pollution, biomass fuel exposure, like you said, especially in low- and middle-income countries, occupational exposures. Indoor pollution is being increasingly recognised, workplace exposure, even sedentary habits, again, likely related to indoor air quality has been associated with COPD. So, I think we're seeing more and more that it's not just a disease associated with cigarette smoking, but there are a lot more other reasons for COPD.

Richard: [05:07]

And continuing to smoke and also being exposed to the pollution, biomass, tobacco, vaping, marijuana almost certainly will impact progression of COPD over time, making things worse?

Surya: [05:18]

I would think so. I think the evidence, again, is strongest for cigarette smoking, and that possibly is because it's very relatively easy to quantify cigarette smoking. We don't have good ways to quantify environmental exposures, certainly not biomass fuel exposure. But I think based on the cross-sectional studies that we see I think it's likely that these are all associated with continued progression of COPD.

Richard: [05:40]

Let's talk now about smoking cessation. We have smokers. We want people to stop. In fact, most of our patients want to quit cigarette smoking, particularly. Cigarette smoking is a difficult addiction. However, we have effective therapies. Perhaps, you can tell us a little bit about the value of smoking cessation, and indeed the therapies?

Surya: [05:59]

Yeah. So, I agree with you that it's highly addicting. It's probably one of the most addictive substances that people use. There are some therapies. But I think, again, I would stress on prevention as the primary modality because of the high addictive potential and nature of cigarette smoking. Once somebody has started smoking and is already addicted to it, I think it is really difficult for us to get them to quit smoking. The smoking cessation rates in clinical practice range between 10 to 20%, at the end of say, 12 months after we initiate smoking cessation efforts. I think the first step should be to see if the smoker is ready to quit smoking, and then strongly counsel them. Just advice from the healthcare professional has been shown to be associated with almost doubling the chances of quitting smoking. Advice from other healthcare professionals also adds to this, giving some printouts on how to strategise smoking, setting a quit date is also helpful. And then there are some other strategies that we can employ, for example, behavioural counselling, and if the person is ready, we can also offer pharmacologic aids in the form of nicotine replacement products, and nicotine receptor agonists, which have been found to be associated with increased cessation rates.

Richard: [07:06]

I think it's very important for us briefly to outline the benefits of smoking cessation, and certainly we can reduce cough, sputum, and indeed improve sometimes things such as skin wrinkling and skin colouration, which can appeal to some of our patients. Can you outline some more of the benefits?

Surya: [07:23]

Yeah, I think there are some lung related benefits and non-lung related benefits. Short term, I think I agree with you, symptoms of chronic bronchitis like cough, sputum production, as well as shortness of breath are substantially alleviated by quitting smoking. Symptoms of cough can be alleviated within a few months of quitting smoking and in some cases may almost completely go away. Exacerbation frequencies are significantly decreased. The rate reduction is about 20% by quitting smoking as opposed to continuing smoking. In the long run, the rate of lung function decline can be decreased by about 33% by quitting smoking. The lung health study showed that survival is also better if you quit smoking. Over a period of fourteen and a half years, the lung health study found that the survival is about 20% better in people who quit smoking as opposed to those who continue to smoke. There are some other non-lung related benefits as well as more substantially the common comorbidities seen with COPD, for example, cardiovascular disease, cerebrovascular disease, lung cancer.

Richard: [08:21]

So, there's absolutely no doubt, stopping smoking is really good for us, really important for our health, unfortunately, some of our patients continue to smoke, don't they? And that's difficult, and we obviously got to keep working on them to stop. But that has impacts on other things we're doing, particularly pharmacological therapies. And there are increasing concerns at the moment about the efficacy of inhaled corticosteroids in this group. Can you tell us a little about that?

Surya: [08:47]

Absolutely. I think one of the biggest treatments that we have for COPD is anti-inflammatory therapy. And there is now data to suggest that several anti-inflammatory therapies including azithromycin, roflumilast, and especially inhaled corticosteroids seem to work better in people who quit smoking as opposed to those who continue to smoke. In the SUMMIT study, the rate reduction for exacerbations in former smokers was 36%, as opposed to only 19% for those who continue to smoke. In the IMPACT study, it was found that the rate reduction or the beneficial impact of inhaled corticosteroids was better than former smokers than current smokers irrespective of eosinophil counts. So, I think these are important effects that are impacted by cigarette smoking.

Richard: [09:31]

So perhaps you'd remind the audience what are the potential benefits of inhaled corticosteroids particularly in those who don't smoke?

Surya: [09:37]

I think the indication right now for prescribing inhaled corticosteroids is those who have a high exacerbation risk or exacerbation frequency, which is commonly defined as at least one hospitalisation for an acute exacerbation or at least two moderate exacerbations in the past year. And it is especially seen to be helpful in those with a high eosinophil count. Although you can use eosinophil as a continuous count, generally about 300 cells per microliter of blood eosinophil count is associated with a better response. And inhaled corticosteroids are also likely beneficial in those people with COPD with either a history of/or concomitant asthma. Another potential indication as according to the American Thoracic Society would be to say, if someone is already optimised on a LAMA and a LABA, and they continue to have exacerbations, then inhaled corticosteroids may be indicated, especially if these other criteria are met.

Richard: [10:27]

I want to come back and pull this back to the smoking for a second. So actually, you've outlined beautifully who should get inhaled corticosteroids. And you've also said that actually, if yours continues to smoke, you get less benefit from inhaled corticosteroids. So, we've really got to get our patients to stop smoking, because they'll get benefits on exacerbation reduction anyway, and potentially their inhaled corticosteroids will work better.

Surya: [10:48]

That's absolutely right. I think for these people who have the indication for inhaled corticosteroids, quitting smoking is very likely to make the effect size much better, and patients are going to get much better benefit if they quit smoking.

Richard: [11:01]

You've mentioned already dual bronchodilators, long-acting antimuscarinics and long-acting beta agonists, as well in COPD treatment, are these drugs affected by cigarette smoke, and how should we use them?

Surya: [11:11]

Interestingly, no. There are now several post-hoc analyses of randomised controlled trials that suggest that the treatment effect of dual bronchodilators is not impacted by cigarette smoking. Most recently the post-hoc analysis of the large EMAX study showed that there was absolutely no difference in the treatment benefits, whether a patient continued to smoke or not.

Richard: [11:33]

That's really helpful. So, we should be using dual bronchodilators and obviously using inhaled corticosteroids in the right people and getting our patients to stop smoking. Yes?

Surya: [11:40]

Absolutely. I think this can be another incentive for people to quit smoking

Richard: [11:45]

I think it can be helpful. So, let's move on to how you approach smoking cessation with your patients. Are there any principles you use, or any key words you use that you can help our audience with?

Surya: [11:55]

Yeah. I think, you know, there are different ways to advise people to quit smoking. I think most importantly, is to be very non-judgmental about it, acknowledging that it's a very addictive substance, and encourage the patient to go through the process of quitting smoking. It is a long process, and I think we should prepare our patients for it. There are several strategies that can be employed. And I think one of the strategies is provided by the GOLD document. And this is actually a five-step program whereby it is a series of ‘As’. It says, you know, first ask the patient if they are ready to quit smoking, to see at what stage are they in terms of their desire to quit smoking, and the next A is to advise them to quit smoking, and all these are based on evidence. So just advising them seems to double the chance of quitting smoking. And then assess their willingness and the desire to quit smoking, and then assist them in quitting smoking, and we talked about some of the strategies that we can employ to assist them in quitting smoking, which is by providing them the resources with line numbers in some countries, and then social support behavioral counselling and the pharmacologic therapies that they would need. And, then finally, I think the last A is for arrange for a follow-up, I think it's very important to see what happened after you made all this effort to try and quit smoking, reiterating the strategies, and you may have to repeat this a couple of times for patients to successfully quit smoking.

Richard: [13:13]

We have a very similar thing in the United Kingdom called very brief advice, again, with the same sort of principles, which is really important. And you can look these ATS and also UK advice on cigarette smoke quitting on the websites, just Google that for them. So, Surya, typical question now, I want you to summarise the key takeaways you'd want the audience to take away from the discussion we've had today about smoking, its effect on treatment, and also smoking cessation.

Surya: [13:36]

I think the biggest message is to not start smoking. Primary prevention is key, but if patients have already taken on smoking, then I think it's very important to have them quit smoking because there are several short-term and long-term benefits to quitting smoking in terms of symptom improvement, reduction in exacerbation frequency, attenuation of lung function decline, and even improved survival. And there's also data that quitting smoking will improve the effects of inhaled corticosteroids.

Richard: [14:05]

That's absolutely fantastic. Before I come onto talking about this important paper, please stay with us for this. Professor Surya Bhatt, thank you for joining me today on the Medical Insider COPD Podcast. I really enjoyed chatting with you today. There's so much practical takeaway, which is really, really important for our audience. Thank you so much.

Surya: [14:24]

Thank you for having me on the podcast.

Richard: [14:32]
Now, let's talk about an interesting and new piece of scientific information which may help our COPD patients and indeed drive policy. This is a new paper published in the European Respiratory Journal, Open Research 2022, volume eight, page 0183 to 2022. It's entitled, ‘Air quality in Mexico City during COVID-19 lockdown possibly decreased COPD exacerbations.’ This is a research letter, but it has some important points. In lockdown, PM10 exposure, air pollution, and PM2.5 exposure was reduced in Mexico and they wondered it in Mexico, whether this affected exacerbation rates.

Richard: [15:14]
So, they looked at two groups of patients, people who had rural COPD and people who had urban COPD. They did a telephone survey and a review of medical records of all of the patients that actually responded to the survey. That's about 210 people. They looked at moderate and severe exacerbations, what isolation precautions the individuals take, and also what the air quality was like in their areas over time. Now, interestingly, the rural patients with COPD generally were exposed to biomass, and these were in a vast majority, females with better lung function.

Richard: [15:45]
The urban COPD patients had tobacco smoke-caused COPD, were a majority of males and had worse lung function. But interestingly, over time, the exacerbation rates were significantly decreased for both groups. Indeed, more than a 50% reduction from baseline. There was no clear association with lockdown measures or behavior or anything else they could find, but there was a very clear time association with the reduction in PM10 and PM2.5 air pollutants, particularly in the cities. This was a similar finding in United States, with a 25% reduction in air pollution and indeed, similarly also in China. So, they concluded that it's much more likely the air pollution itself was driving some of the reduction in exacerbations of COPD, particularly in Mexico City because of reduction in car use and indeed air travel. So, the take-home message from this paper is really, we should be trying to campaign for clean air whenever we can, reducing particularly urban air pollution and improving the air for our COPD patients.

Richard: [16:58]
So finally, on today's Medical Insider COPD Podcast, we're going to talk about a social media campaign. Indeed, an important and fun thing for our COPD patients to do. It's singing for lung health, especially concentrating on COPD. This is an evidence-based intervention. There's evidence from 2010 onwards and indeed a Cochrane review on its efficacy. It's safe and has no side effects. It's supported by national charities such as Asthma + Lung UK and indeed members from the Royal Opera House indeed have got involved in training people with COPD to sing. There's a great website called bayswater.co.uk, which has got helpful information and support for how to set up your own group and indeed exercises to do to that improve diaphragm breathing, exercises for your cheeks, your jaws, and indeed how to do things called lip trills.

Richard: [17:49]
They also suggest songs, Christmas songs, but also songs as simple as happy birthday. The Tayside Community Art Center also has things on Twitter and YouTube to help you in how to set up a group and indeed how to get the best from people with lung disease when singing. So, I want to encourage you to engage with your patients and inspire them to start singing, which is great for community feeling, for coherence, and indeed for lung health. So, thank you for joining me today on the Medical Insider COPD Podcast. Please subscribe so you don't miss any of our prior content and also our content going forward. And join me for the next one in the series!