Pulmonary Hypertension & METHAMPHETAMINE USE
Pulmonary hypertension (PH) is a complex and often misunderstood disease. The term PH simply means high blood pressure in the arteries of the lungs. In regular hypertension — also known as high blood pressure or systemic hypertension, which you can check with a blood pressure cuff — the pressure in the arteries of the entire body is higher than it should be. In PH, the blood vessels specifically in the lungs are affected. They can become stiff and narrow, and the right side of the heart must work harder to pump blood through them. There are five groups of PH based on different causes.

Each form of PH is different, so it is important for newly diagnosed patients to find a PH specialist who can accurately pinpoint what is causing their PH. They then can develop a treatment plan for that specific type as soon as possible after a confirmed diagnosis. Every individual with PH is different, and new research with the potential to improve the outlook for people living with this disease is conducted on a continual basis. Once in the care of a PH-treating health care team and on appropriate therapy, individuals with PH can live for many years.

Normal mean pulmonary artery pressure is between 8-20 mmHg at rest. Pulmonary hypertension is defined as a resting mean pulmonary artery pressure at or above 25 mmHg.

PH, or high blood pressure in the lungs, frequently results from a narrowing of the small blood vessels in the lungs, which leads to a larger right side of the heart.
PH IN ASSOCIATION WITH METHAMPHETAMINE USE

Since the 1990s, methamphetamine (or meth) use across the globe has significantly increased. In 2016 alone, nearly 1.4 million people in the U.S. age 12 and older were estimated to have used meth in the past year.¹ Meth can be inhaled, smoked, snorted, taken orally or injected. Meth use has been associated with increased heart diseases, including diseases of the coronary arteries and the heart muscle — and lung diseases, such as acute bleeding of the lungs, excess fluid in the lungs, collapsed lungs and PH.

Research continues into the causes and development of PH. Scientists are trying to identify factors that lead to a form of World Health Organization (WHO) Group 1 PH (idiopathic pulmonary arterial hypertension, or IPAH) in which the cause of the condition is not yet known. It is essential that patients are honest and open with their doctors about all activities in their lives, including past or present drug use. Establishing these connections can help doctors when choosing a treatment plan. It also helps researchers understand the risk factors that apply to patients with this disease. For example, we know that amphetamines are similar to diet pills like fenfluramine, which is most well-known as one component of the once-popular anti-obesity drug known as Fen-Phen. Fen-Phen has since been withdrawn from the market because of a potential link between use of that drug and development of PH and heart valve problems.

For more than 10 years, researchers have been looking for information to better understand the association of meth use and PAH. One study looked at persons with different types of PH to see if there were differences in self-reported stimulant use, including meth. In this study, individuals with IPAH were 10 times more likely to report previous stimulant use than persons with WHO Group 4 PH (chronic thromboembolic pulmonary hypertension, or CTEPH) and more than seven times more likely to report stimulant use than PH associated with other conditions.\(^2\) That risk figure was similar to one found in studies of individuals who developed PAH and had used appetite stimulants (also known as anorexigens). While these are not controlled studies, they do make medical professionals aware of a strong association between stimulant use and PAH. How the two are associated, however, remains unknown.

More recently, a study compared persons with PAH who reported previous meth use (Meth-APAH) to patients with IPAH.\(^3\) This study found that compared to individuals with IPAH, those with Meth-APAH were more likely to be male, but scored similar in age and six-minute walk distance (a measure of exercise capacity) at diagnosis. However, the study found that Meth-APAH patients had more advanced heart failure symptoms and some worse right heart catheterization measurements. The risk of disease worsening and death was higher in Meth-APAH patients than IPAH patients.

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As mentioned previously, it is important for patients to be completely honest with their health care providers about all aspects of their lives. In addition, symptoms like fatigue or shortness of breath with exertion, or swelling of the hands or feet should always be reported. If these symptoms are already present, a patient’s health care team should be notified if the symptoms worsen or become more pronounced.

**DIAGNOSING PH IN METHAMPHETAMINE USE**

Several different types of screening tests are available and some are more effective than others. An echocardiogram is an ultrasound of the heart that provides a rough estimate of the pressure in the lungs and assesses the function of the right ventricle, and it is often one of the first screening tests for PH.

Right heart catheterization remains the most accurate PH diagnostic test, measuring the pressures and flow directly in the heart and providing other information about the heart’s condition. It is an invasive procedure usually performed on an outpatient basis in the hospital.
TREATMENT OPTIONS FOR PH IN METHAMPHETAMINE USE

Even though individuals with IPAH were more than 7.5 times more likely to have used stimulants than individuals with PAH associated with other known risk factors, there still is a relatively small number of cases where patients have admitted to stimulant use. Therefore, very little data exists on the treatment of this group of patients, and treatment recommendations for Meth-APAH must be taken from other PAH studies. If Meth-APAH is diagnosed, PAH-specific therapies can be carefully prescribed by a PH specialist.
About the Pulmonary Hypertension Association

The Pulmonary Hypertension Association (PHA) is a community of individuals with PH, caregivers, families, medical professionals and researchers who work together to empower people battling the disease, while supporting research toward improved treatments. PHA was the first organization in the world dedicated to providing comprehensive PH patient and caregiver support, medical education, research and services that improve patients’ quality of life.

PHA facilitates more than 200 active support groups around the country and serves as a model for more than 85 international PH organizations. In addition to in-person support, PHA offers a telephone support line, an email mentorship program, educational patient programs and a variety of print and online publications. Every two years, PHA hosts its International PH Conference and Scientific Sessions, which brings together nearly 1,500 individuals with PH, caregivers and medical professionals to share information on the latest research, treatments and lifestyle coping tips.

PHA also has provided more than $8 million for PH research and offers continuing education programs for medical professionals through the PHA Online University and an in-person CME program.

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