

Letter from the Industrial Physician



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The Relationship Between Hay Fever Medications and Drowsiness

As this season approaches, more and more patients with hay fever start visiting clinics. In the past, the occupational health letter has often covered hay fever as a topic in February. So, this time, we will once again talk about hay fever (sorry for the repetition!). More specifically, we will discuss hay fever medications, particularly their effects on drowsiness.

Hay fever occurs when allergens (such as pollen) enter the body and bind to receptors on the surface of mast cells. This triggers the release of histamine from the mast cells. Histamine then binds to histamine receptors in the blood vessels of the nasal mucosa, causing blood vessel dilation and increased permeability, which lead to symptoms like nasal congestion and a runny nose.

Antihistamines, which are commonly used to treat hay fever, work by suppressing these effects of histamine. However, at the same time, they also suppress histamine's role in maintaining wakefulness in the brain. Histamine is an essential neurotransmitter for maintaining wakefulness in the central nervous system. In particular, histaminergic neurons in a part of the hypothalamus called the tuberomammillary nucleus project to various brain regions, such as the cerebral cortex and brainstem, promoting wakefulness. As a result, brain activity remains alert, and attention levels stay high.

However, when antihistamines are taken as hay fever medication, they interfere with this wakefulness-promoting function, leading to drowsiness. To address this, newer antihistamines have been designed to minimize penetration into the brain. The older ones are called first-generation antihistamines, while the newer ones that are less likely to enter the brain are known as second-generation antihistamines.

You may be familiar with second-generation antihistamines like Allegra (fexofenadine) and Alesion (epinastine). Since they have lower brain penetration, they are less likely to cause drowsiness. Therefore, there are no strict prohibitions against driving while taking them.

That said, even second-generation antihistamines are not entirely incapable of crossing into the brain, and they may still cause some mild drowsiness or brain fog. If you need to drive, be extra cautious when taking these medications.

Strength	Drug Name	Notes
Strong	Xyzal	Highly effective but may cause drowsiness.
	Allelock	Strong effect; drowsiness is common.
	Desalex	Selective for H ₁ receptors; relatively less drowsiness.
	Bilanoa	Less likely to cause drowsiness, but must be taken on an empty stomach.
Moderate	Zyrtec	May cause drowsiness; often recommended for nighttime use.
	Talion	Moderate effect with relatively low drowsiness.
	Alesion	Less drowsiness but varies by individual.
Mild	Allegra	Minimal drowsiness, suitable for daytime use.
	Claritin	Long-lasting effect with little drowsiness.

Furthermore, the effectiveness of each antihistamine varies. The table on the above provides a comparative list of commonly prescribed second-generation antihistamines based on their strength. Please refer to it when choosing a medication.

Antihistamines are not only used for hay fever but are also frequently prescribed as decongestants for colds. When receiving a prescription from a hospital or pharmacy, it is advisable to check the active ingredients. Stronger medications tend to cause more drowsiness, so they are usually taken before bedtime.

Additionally, there are multiple types of histamine receptors, with H₁ and H₂ receptors being the most well-known. The H₁ receptor is involved in allergic reactions, whereas another type of receptor, the H₂ receptor, is found in the digestive tract.

H₂ receptors play a role in stimulating gastric acid secretion. Medications known as H₂ blockers (H₂ receptor antagonists) are used to suppress this function. A well-known example is Gaster (Famotidine), which is classified as an H₂ blocker.