Researchers at Sweden’s Karolinska institute have tried to answer why influenza infections lead to an increased risk of bacterial pneumonia. They have described findings leading to so-called “superinfections”.

They cite the example of Spanish flu, which was an influenza pandemic that swept across the world in 1918–20. Unlike many other pandemics, the Spanish flu hit young healthy adults, due to the superinfections caused by bacteria, in particular pneumococci.

Superinfections: These are infection occurring after or on top of an earlier infection, especially following treatment with broad-spectrum antibiotics. It is an overgrowth of an opportunistic pathogen from the bacterial or yeast imbalance of systemic antibiotics. For example, influenza is caused by a virus, but the most common cause of death in influenza patients is secondary pneumonia, which is caused by bacteria. However, the reason behind influenza infections leading to an increased risk of bacterial pneumonia is not known.
Researchers looked at mechanisms behind this increased susceptibility. They found that different nutrients and antioxidants leak from the blood. This creates an environment in the lungs that favours growth of bacteria.

The bacteria adapt to the inflammatory environment by increasing the production of HtrA enzyme. HtrA weakens the immune system and promotes bacterial growth in the influenza-infected airways. The results of the research could be used to find new therapies for double infections between the influenza virus and pneumococcal bacteria.

**Influenza**

- It is a **viral infection** that attacks the respiratory system i.e. nose, throat and lungs and is commonly called the **flu**.
- **Symptoms:** Fever, chills, muscle aches, cough, congestion, runny nose, headaches and fatigue.
- **Common Treatment:**
  - Flu is primarily treated with **rest and fluid intake** to allow the body to fight the infection on its own.
  - **Paracetamol may help** cure the symptoms but **Non Steroidal Anti-inflammatory Drugs** (NSAIDs) should be avoided. An **annual vaccine can help prevent** the flu and limit its complications.
- Young children, older adults, pregnant women and people with chronic disease or weak immune systems are at high risk.

**Pneumonia**

- It is an infection that **inflames the air sacs in one or both lungs**. The air sacs may fill with fluid or pus.
- **Cause:** Variety of organisms, including bacteria, viruses and fungi.
- **Symptoms:** Cough with phlegm or pus, fever, chills and difficulty breathing.
- **Treatment:** Antibiotics can treat many forms of pneumonia. Some forms of pneumonia can be prevented by **vaccines**.
- The infection can be **life-threatening to anyone**, but particularly to **infants, children and people over 65**.