Widely used asthma drug may improve performance of cancer immunotherapies

Montelukast, sold under the brand name Singulair by Organon and available in generic versions, blocks a key molecule called CysLTR1 that plays a role in asthma. The molecule is also used by tumors to suppress the body's immune defenses, researchers found in lab experiments.

London: The common asthma drug montelukast may boost the effectiveness of cancer immunotherapies, new research suggests.

Montelukast, sold under the brand name Singulair by Organon and available in generic versions, blocks a key molecule called CysLTR1 that plays a role in asthma. The molecule is also used by tumors to suppress the body's immune defenses, researchers found in lab experiments. By blocking CysLTR1 and restoring those immune defenses, montelukast improves the effectiveness of cancer immunotherapy drugs, according to a report of the study published in Nature Cancer.

In test tube experiments with human cancer cells and in mice with various types of cancer, researchers found tumors "turn on" CysLTR1 to increase production of so-called polymorphonuclear myeloid-derived suppressor cells, which resemble immune cells called neutrophils but which actually suppress tumor-fighting immune defenses.

"When we turned off this switch, either genetically or with (montelukast), we not only slowed tumor growth, but also helped the immune system recover its ability to fight the cancer," study leader Dr. Bin Zhang of Northwestern University Feinberg School of Medicine in Chicago said in a statement.

Because montelukast and other drugs that block CysLTR1 are already FDA-approved, patient trials could start soon, the researchers said.

"We may be able to quickly and safely test it in cancer patients to improve immunotherapy. Especially in aggressive cancers, like triple-negative breast cancer, where new options are urgently needed," Zhang said.

"The next steps are to confirm this mechanism in patients, identify who will benefit most, optimize how we use these drugs especially in combination with immunotherapy, and begin carefully designed clinical trials."

SHORT COURSE OF OPIOID ABUSE DRUG IMPROVES KETAMINE RESPONSE

Adding a low dose of buprenorphine after a single treatment with the psychedelic drug ketamine may significantly reduce thoughts of suicide in patients with severe depression, researchers say. U.S. President Donald Trump recently signed an executive order directing health regulators to speed research into uses of psychedelic treatments.

Ketamine is known to reduce suicidal thoughts very quickly, often within hours, but the effect generally does not last long, the researchers said.

In the study, 50 adults with major depression and clinically significant suicidal ideation received a single infusion of ketamine and two days later were randomly assigned to receive either low-dose buprenorphine or a placebo for four weeks. Buprenorphine is typically used to treat opioid use disorders or pain.

By week four, depression in both groups had improved to a similar extent, but suicidal ideation had decreased by 76% in the buprenorphine group, compared to 43% among those who received a placebo, according to a report published in the American Journal of Psychiatry to coincide with a presentation at the American Psychiatric Association meeting in San Francisco.

There are currently no FDA-approved medications specifically indicated to reduce suicidal ideation in major depressive disorder, the researchers noted.

"This is the second trial to indicate that buprenorphine at low doses reduces suicidal ideation in major depression," study leader Dr. Allen Schatzberg of Stanford University School of Medicine said in a statement.

"However, unlike earlier reports, the degree of reduction was enhanced markedly by pre-treating with intravenous ketamine," he added.

The authors noted that because the small study excluded individuals with substance use disorders, more research is needed to confirm the findings and determine optimal treatment durations.

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