

1. AZATHIOPRINE

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Introduction

Azathioprine (AZA) is an antagonist of purine metabolism, which inhibits DNA, RNA and protein synthesis. It is an immunosuppressive agent used for the treatment of rheumatic diseases, inflammatory bowel diseases and the prevention of organ transplant rejection.

Mechanism of Action

Azathioprine is a prototypic immunosuppressive antimetabolite. It is a prodrug of mercaptopurine that is well-absorbed from the gastrointestinal (GI) tract. Azathioprine is cleaved by xanthine oxidase to 6-thiouric acid.¹⁻²

Once metabolized, azathioprine exerts its immunosuppressive effects by inhibition of purine and protein synthesis in lymphocytes.³ This reduction in intracellular purine synthesis inhibits the proliferation of T and B lymphocytes, leading to decreased production of cytotoxic T lymphocytes and plasma cells, reduced immunoglobulin synthesis⁴ and diminished interleukin (IL)-2 secretion.⁵ AZA does not reduce serum levels of IL-6 or soluble IL-2 receptor.⁶

So far, there are no articles indicating the potential of Azathioprine in suppressing COVID-19 cytokine storm.

Clinical Studies

Currently, there are no clinical trials on the use of Azathioprine for COVID-19.

Recommended Dose

No recommended dose as of yet.

Adverse Effects

The most common side effects of AZA at doses typically used in the treatment of rheumatic diseases include gastrointestinal intolerance², bone marrow suppression⁷, and infection.⁸⁻⁹

The major side effects include dose-dependent myelosuppression, particularly leukopenia. Azathioprine should be temporarily withheld if the white cell count falls below 3000/mm³ or drops by 50 percent compared with the previous value. Other potentially serious side effects include hepatotoxicity and pancreatitis.

Conclusion

There is no available evidence as to the use of Azathioprine in COVID-19.

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