The Efficacy of JAK 1/2 Inhibition to treat Polycythemia Vera

Anaya Surve
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Background

- Polycythemia Vera (PV) is a myeloproliferative neoplasm which causes an excess production of blood.
- Hydroxyurea, an antineoplastic, is administered to many patients with PV.
- Janus Kinase (JAK) inhibitors are immunosuppressants: ruxolitinib (RXB), tofacitinib, and upadacitinib.
- JAK 1 is responsible for protein coding while JAK 2 promotes proliferation of cells.
- JAK 1/2 is usually used for joint pain and swelling in patients with rheumatoid arthritis.

Question

How effective is JAK 1/2 Inhibition in treating Polycythemia Vera?

Results

- RXB has been most tested with PV, and has shown a significant improvement, with a P-value of <0.0001 in some trials, in PV symptoms.
- In combination with the drug Interferon, there has been an improvement in cell counts, bone marrow, and fibrosis.
- Metabolic effects of RXB are positive.

CONCLUSION

- JAK inhibition is a promising a replacement for hydroxyurea and further improves PV symptoms in conjunction with other drugs.

Future Direction

- Testing other JAK inhibitors such as Methotrexate for PV treatment.
- COVID treatment with JAK inhibition.

Citations