



# Recent Trends in Oncovin (Vincristine) Use for Acute Lymphoblastic Leukemia: Liposomal Formulations, Pharmacogenomics, and Toxicity-Mitigation Strategies

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## Article History

Received: 06.08.2025

Accepted: 10.10.2025

Published: 27.11.2025

**Abstract:** - Oncovin is an antineoplastic or cytotoxic chemotherapy anticancer medication. This medicine is secret as an industrial unit alkaloid. Vincristine Sulfate is the sulfate mop up of a innate alkaloid insulate from the industrial unit Catharanthus roses (Vinca reseat.) by means of antibiotic and antineoplastic habituation .Vincristine binds once and for all to microtubules and spindle proteins in S stage of the cell cycle and interfere by means of the conformation of the mitotic spindle, thereby enthralling carbuncle cells in metaphase. This driving force too depolymerizes microtubules in addition to might also encroach with amino acid, cyclic AMP, and glutathione metabolism; calmodulin reliant Ca<sup>(2+)</sup> - actuate ATPase exertion; cellular respiration; and nucleic acid and lipid biosynthesis. Cancers treated in the midst of Oncovin take account of acute leukemia, Ewing's sarcoma, Hodgkin's and non- Hodgkin's carcinoma, habitual leukemia's, neuroblastoma, multiple myeloma, rhabdomyosarcoma, Wilms' excrescence, thyroid cancer, braintumors.It's too used to treat several blood diseases. Vincristine is worn to treat leukemia, Hodgkin's complaint, non-Hodgkin's carcinoma, rhabdomyosarcoma (squashy rub down excrescences), neuroblastoma (malignancy with the intention of form in impulse-whams mop up), and Wilms' excrescence. Vincristine possibly will too be used for other purposes not listed in this drug companion. Oncovin, a vinca alkaloid insulate from the industrial unit Vinca roses, irrevocably binds to and stabilize tubule, by this means interpose microtubule congregation/ disassembly dynamics. Compare to customary liposomal delivery, sphingosomal drug deliverance additional increases rotation time of serum medicine and enhance medication accretion at excrescence spots, thus most important to a farther than augment in efficacy.

**Keywords:** cytotoxic chemotherapy, anticancer medicine, natural alkaloid, spindle proteins, neuroblastoma, Liposomal encapsulation.



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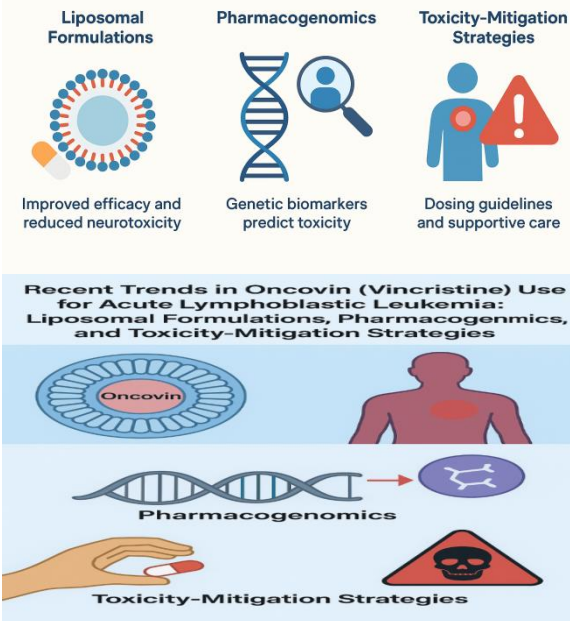


## Cite this article:

Sikkander, A. M., Yadav, C. H., Revanuri, N., (2025). Recent Trends in Oncovin (Vincristine) Use for Acute Lymphoblastic Leukemia: Liposomal Formulations, Pharmacogenomics, and Toxicity-Mitigation Strategies. *ISAR Journal of Medical and Pharmaceutical Sciences*, 3(11), 20-23.

## Graphical Abstracts:

### Recent Trends in Oncovin (Vincristine) Use for Acute Lymphoblastic Leukemia



### Highlights:

- # Liposomal Vincristine (Marqibo®) Enables Enhanced Drug Delivery and Reduced Neurotoxicity Risk
- #Pharmacogenomic Marker *CEP72* Emerges as a Key Predictor of Vincristine-Induced Neuropathy
- #*CYP3A* and ABC-Transporter Genetics Inform Inter-Individual Variability in Vincristine Clearance
- #Novel Toxicity-Mitigation Strategies Aim to Reduce Peripheral Neuropathy Without Compromising Efficacy
- #Precision-Medicine Approaches Drive Movement Toward Genotype-Guided Vincristine Dosing

### Introduction:

The cure of elderly belongings in the midst of acute lymphoblastic leukemia (ALL) is an unmet therapeutic necessitate. By means of adding up epoch, ALL belongings encompass a appreciably inferior quantifiable liberty rate, elevated near the beginning transience, highly developed deterioration rate, and not as good as continued existence compare by means of youngish belongings(1). This is merely to some extent explaining through a sophisticated pervasiveness of deprived predictive aspect during the elderly epoch faction. The majority prominently, fierce chemotherapy by means of or devoid of stem cell transplantation (SCT) is fewer glowing allowable in aged belongings (2). Various development have been made by means of deliver epoch acclimate, comparatively fierce chemotherapy protocol for Ph/ BCR – ABL-negative ALL along with combination of tyrosine kinase impediment in the midst of chemotherapy in Ph/ BCR – ABL-positive ALL(3). Intended for the expectations, optimizing probative be bothered introduce beleaguered curatives, innovative

immunotherapies, comparatively boost correlation strategy, and abridged concentration SCT be shows potential approach. Forthcoming quantifiable trials for ripened belongings are immediately demand to assessment these approach (4). The European Organisation for Research and Treatment of Cancer 58951 assessment for kids by way of acute lymphoblastic leukemia( ALL) ornon-Hodgkin carcinoma( NHL) address 3 randomized question, counting the assessment of dexamethasone( DEX) opposed to prednisolone( PRED) in bringing on moreover, for middling menace belongings, the assessment of vincristine and corticosteroid beat for the duration of sturdiness medication(5). Sturdiness management in nonage acute lymphoblastic leukemia (ALL) relies on a mishmash of diurnal thiopurine in addition to on a daily basis methotrexate (6). Several corroboration chains a relative flanked by highly developed boluses of these medicine for the duration of sturdiness medication and an enhanced elsewhere augmentation (7). Medical study perform during the 1970s and 1980s show that cure strengthening throughout preservation better the development of no intensive protocol (8). In the middle of the combination further to the thiopurine- methotrexate preliminary resilience medication, reeducations of vincristine( VCR) and prednisone( PRED) have often be used and encompass better healing result intended for a number of belongings (9). A outsized demonstration psychoanalysis by means of the babyhood ALL mutual collection recommended so as to intended for belongings at average or middle menace of deterioration toward the inside a dealing influence of reasonable greatness, the adding of VCR PRED beats to sturdiness medication did ameliorate the complaint-free survival (DFS) from 59.5 to 68.9 (10). The Dutch babyhood Leukemia Study Group ALL VI nonrandomized study for non far above the ground intimidation belongings, beached on the Pinkel St Jude Total Therapy move toward, worn dexamethasone( DEX) to a certain extent of PRED throughout stimulation and recurrent VCR DEX reeducation beats all the way through sturdiness medication(14 days each 7 weeks)(11). The far above the ground heal rate achieve in this revise an occasion gratis continued existence at 8 period of 81(standard error (SE), 3) plus the near to the ground pervasiveness of central nervous system ( CNS) degeneration be to some extent accredited to the make use of DEX in initiation plus in beat(12-21).

### Conclusion:

Even though a detachment of the belongings describe have been incorporated preliminarily within the I- BFM intergroup assessment so as to examine the significance of VCR DEX beats in sturdiness medication, the EORTC- CLG present its conclusion on VCR corticosteroid beats in belongings with AR distinctiveness subsequent to a longer transcribe. Within the behind schedule 1990s, next to a moment in time after AR group of belongings treated through BFM- stranded protocols have an occasion-liberated continued existence of roughly 75(ie, 15- 20 highly developed than in the near the beginning 1980s), the query raise whether the benefit handed by means of the adding together of beats in toughness medication would clutch on in belongings treat by means of current, more ferocious, rules. The AR collection of belongings transitory the uppermost accretive pervasiveness of relapse in supreme records be whispered in the direction of exist the for the most part appropriate enduring assemblage intended for the addition of beats to the introductory durability treatment. In the EORTC- CLG 58951 trial, the overall 6- time DFS tempo intended

for AR belongings be 82.8 (SE, 2.8). In spite of this consequence, organization of VCR corticosteroid beats lead to an augmentation of DFS, to be exact 90.6 (SE, 2.1), which be in inconsistency by means of the domino effect of the I- BFM intergroup trial. The consequence on DFS was comparable for VCR PRED beat and for VCR DEX beats. To be brief, VCR steroid beat for the duration of storing up medication be of advantage subsequent to innovative fierce chemotherapy during belongings by means of middling menace uniqueness furthermore streamline DFS anon stretched summarize, devoid of adding together noxious possessions. The EORTC- CLG suggest introduce beat in BFM- beached protocol designed for AR belongings.

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“Conflict of Interest”

**“Dr A.Mohamed Sikkander has no conflict of interest to report”.**