INTRAVENOUS ARTESUNATE

WHAT IS ARTESUNATE?

Artesunate is a drug which has been developed from a natural plant called Sweet Wormwood, (Artemisa Annua). It is a semi-synthetic derivative of Artemisinin, the active ingredient in plant. Traditionally it has been used to treat Malarial based infectious diseases. But in recent times evidence is gathering of its use in its effect against cancer.

WHAT EVIDENCE IS THERE THAT ITS EFFECTIVE AGAINST TREATING CANCER?

There is gathering evidence that intravenous (IV) artesunate can be helpful in killing cancer cells when combined in conventional therapy or chemotherapy or radiotherapy, or when combined with natural treatments like IV vitamin C. There have been clinical trials demonstrating its effectiveness on a range of different cancers including: Prostate cancer[1], renal cell carcinoma[2], pancreatic cancer[3], gastric cancer[4], brain cancer[5], liver cancer[6], sarcoma[7], colorectal cancer[8], melanoma[9] and endometrial cancer[10].

Artesunate can be effective because it selectively affects tumor cells without harming normal cells. This is because artesunate only affects cells that contain excessive amounts of iron which in this case is cancer cells. Cancer cells have very specific receptors on the cell membrane which demand large amounts of iron which is needed for cell division. When coming into contact with iron, artesunate triggers the release of free radicals that destroys the cancer cells. The more the accumulate iron the higher the chance for artesunate therapy to work.

cancer cells

Life CLINIC

HOW IS IT BEST USED WITHIN A TREATMENT PROGRAMME?

Artesunate is an oxidising treatment so when combined with other oxidising treatments optimal effectiveness is achieved, typically it is given before high dose vitamin C, which is also oxidising. As artesunate increases the uptake of iron into cancer cells, some clinics warrant the supplementation of extra iron to facilitate this process, the use of iron supplementation needs to be strictly monitored and administered by a medical doctor. Oral vitamin C helps with the absorption of iron in the body.

It is not recommended to use Artesunate with antioxidants like NAC, glutathione, as the antioxidant effects of these nutrients may cancel out the pro-oxidant effects of the artesunate.

WHAT ARE THE SIDE EFFECTS OF USING IV ARTESUNATE?

Of the 4000 + cases of patients using IV artesunate, there have been no significant toxicity found. Short term studies have found that altered taste and slight decrease in Red blood cells was found but this was only temporary. Monitoring the complete blood count and ferritin levels is advised as iron is depleted and this can affect hemoglobin production in the bone marrow.

References

1. Activity of Artemisia annua and artemisinin derivatives, in prostate carcinoma *(ncbi.nlm.nih.gov/pubmed/26655404)*
2. Repurposing the anti-malarial drug artesunate as a novel therapeutic agent for metastatic renal cell carcinoma due to its attenuation of tumor growth, metastasis, and angiogenesis *(ncbi.nlm.nih.gov/pubmed/26426994)*
3. Artesunate induces oncosis-like cell death in vitro and has antitumor activity against pancreatic cancer xenografts in vivo *(ncbi.nlm.nih.gov/pubmed/19690861)*
4. Artesunate inhibits the growth of gastric cancer cells through the mechanism of promoting oncosis both in vitro and in vivo *(ncbi.nlm.nih.gov/pubmed/23958790)*
5. CUSP9* treatment protocol for recurrent glioblastoma: aprepitant, artesunate, auranofin, captopril, celecoxib, disulfiram, itraconazole, ritonavir, sertraline augmenting continuous low dose temozolomide *(ncbi.nlm.nih.gov/pubmed/25211298)*
6. Experimental studies of antitumor effect of artesunate on liver cancer *(ncbi.nlm.nih.gov/pubmed/12776323)*
7. reatment of Iron-Loaded Veterinary Sarcoma by Artemisia annua *(ncbi.nlm.nih.gov/pubmed/24859473)*
8. A Randomised, Double Blind, Placebo-Controlled Pilot Study of Oral Artesunate Therapy for Colorectal Cancer *(ncbi.nlm.nih.gov/pubmed/26137537)*
9. Artesunate in the treatment of metastatic uveal melanoma--first experiences *(ncbi.nlm.nih.gov/pubmed/16273263)*
10. Artemisinin triggers a G1 cell cycle arrest of human Ishikawa endometrial cancer cells and inhibits cyclin-dependent kinase-4 promoter activity and expression by disrupting nuclear factor-κB transcriptional signaling. *(ncbi.nlm.nih.gov/pubmed/24296733)*