A Drug Made for Animals and Taken by Humans to Treat Cancer: Fenbendazole

A Drug Made for Animals and Taken by Humans to Treat Cancer: Fenbendazole - Cancer Treatments - from Research to Application (cancertreatmentsresearch.com)

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From anti-worms to anti-cancer

Previously, we discussed on this website the anti-worm drug Mebendazole (Ref.), which based on a good amount of scientific and clinical evidence, shows relevant anti cancer potential. However, as we saw, it's not only science. Instead, there are case reports published in peer review papers showing that patinets with some aggressive cancers have experienced great response to Mebendazole.

In the same article (Ref.) we explored the mechanism behind the anticancer action of Mebendazole, and found out that Mebendazole acts in a similar way as a group of chemotherapies such as Taxol. Yet, in contrast to chemotherapies, due to the way Mebendazole works, its toxicity is incomparably lower. Because of its good safety profile, the drug is an over the counter drug in most of the countries.

I specifically like the anti-worms, anti-parasites, antibiotics, antiviral drugs, as a pattern start to emerge suggesting that the origin of cancer may be related to such a trigger (e.g. viruses, parasites, etc.) in much more cases than we currently are aware of. Multiple findings and observations, that I will discuss in a different post, indicate that such triggers may initiate cancer when they land in a "fertile ground", represented by specific genetic weaknesses combined with a compromised immune system (due to e.g. stress, lifestyle, medication, etc.). This is why, I would seriously consider using anti-worms, anti-parasites, antibiotics, antiviral drugs as **a part of more comprehensive treatment approaches** that could also include conventional therapies. As long as the toxicity is low, it could make sense to cycle various drugs of this type.

Recommendation: when you finish reading this post, I recommend you read also this post I recently published (September 2020): **10 Cases of Complete Remission from Advanced Cancers after using Supplements or Repurposed Drugs** In this post you will find more repurposed (off-label) drugs that have been shown to induce complete remission in various cancers (published in scientific journals by clinicians and scientists from major universities and hospitals).

The anti-worm drug Fenbendazole has anti-cancer potential

In the same group of drugs as Mebendazole, a group called benzimidazoles, there is another anti-worm drug called Fenbendazole. Fenbendazole, is a drug used typically not for humans like Mebendazole, but for animals (including fish, birds and mammals). In this case, it is used to kill worms such as roundworms, hookworms,

whipworms, and some tapeworms. Fenbendazole is found under various brand names such as Panacur or Safe-Guard.

I did came across this drug some years ago during my research, but only recently I was motivated to look closely at it following several e-mails from friends who shared with me the blog of a man with Small Cell Lung Cancer, who successfully treated his cancer with Fenbendazole (Ref.). On his website, Joe Tippens, not only reports his experience but also anecdotally reports being in contact with more patients experiencing benefits while using Fenbendazole, including two cases of 4th stage Pancreatic Cancer, Prostrate Cancer, Colorectal Cancer, Non-Small Cell Lung Cancer, Melanoma, Colon Cancer.

This anecdotal report would not be enough to trigger me writing this post, if I would not be convinced by the existing scientific evidence indicating the anti cancer potential connected with many of the benzimidazoles drugs. Therefore, I do believe that if Mebendazole could show relevant anti-cancer effects in humans, which it did, Fenbendazole could do it as well and hopefully even better.

In some diseases, Fenbendazole came out as more effective than Mebendazole. For example, when tested against Cryptococcus neoformans (an encapsulated fungal organism that can cause disease such as meningoencephalitis in immunocompromised hosts), it has been shown that Fenbendazole was more active than Mebendazole or other drugs against this opportunistic fungus (Ref.).

Scientific articles published during the past years, have indicated that Fenbendazole shows anti cancer effectiveness. Of these, the paper I found most relevant to specifically cite here first is a paper that was just published during 2018 in one of the most prestigious scientific magazine, that is Nature, which adds a lot of weight to the communicated message. This paper, entitled "Fenbendazole acts as a moderate microtubule destabilizing agent and causes cancer cell death by modulating multiple cellular pathways", concludes the following:

- "The results, in conjunction with our earlier data, suggest that Fenbendazole is a new microtubule interfering agent that displays anti-neoplastic activity and may be evaluated as a potential therapeutic agent because of its effect on multiple cellular pathways leading to effective elimination of cancer cells."

In this paper, the authors cite potential anti cancer mechanisms associated with Fenbendazole, including disruption of microtubule function and proteasomal interference, but it was also associated with blocking the glucose uptake by cancer cells (through reducing the expression of Glut-4 transporter as well as hexokinase) and thus starving cancer cells. This means Fenbendazole could also work nicely in supporting chemotherapy and radiotherapy as well as metabolic therapies. Because of the way it works (interacting with a site on tubulin similar to colchicine but distinct from that of Vinca alkaloids), Fenbendazole will not compete with Vinca alkaloids (such as Taxol) but instead will add to the anti cancer effect of these conventional treatments similar to other benzimidazoles (Ref.).

Interestingly, when insulin stimulates glucose uptake in the cells, glucose transporter isoform 4 (GLUT4) translocates from intracellular vesicles to the plasma membrane ready to absorb glucose. This movement of GLUT4 towards the plasma membrane takes place via both rapid vibrations around a point and short linear movements (generally less than 10 microm). The linear movement seems to take place along microtubules. When

disrupting the microtubules with drugs such as Fenbendazole, GLUT4 movements are disrupted as well strongly reducing insulin-stimulated glucose uptake (Ref.).

Another very interesting point coming from the Nature paper cited above is that Fenbendazole shows strong synergy when combined to **DCA**, a drug that I discussed earlier on this website here. So it may make very much sense to combine the two, and possibly 2DG (Ref.). Could it be that the origin of this synergy comes from the possible glutathione depletion previously observed to be related to Fenbendazole? (Ref.)

Update April 2020: A recent scientific paper suggests yet another anti cancer activity related to Fenbendazole (Ref.). In this paper, the authors suggests that drugs such as Fenbendazole reactivate p53, known as the Guardian of the Genome. p53 functions as a tumor suppressor and it's activity is inhibited in some cancers.

While Fenbendazole could be relevant for many types of cancers (as also suggested by the anecdotal reports listed above and by literature on the anticancer effects of benzimidazoles drugs) prior literature has so far indicated it's anti cancer effects in

- Non-small Cell Lung Cancer Cells (NSCLC) (Ref.)
    - Fenbendazole inhibits the cellular proteasome function dose- and time-dependently and leads to accumulation of ubiquitylated derivatives of various cellular proteins, including p53, which, in turn, leads to apoptosis via the mitochondrial pathway
    - the cells first undergo G2/M arrest followed by apoptosis
    - Fenbendazole induced endoplasmic reticulum stress, reactive oxygen species production, decreased mitochondrial membrane potential, and cytochrome c release that eventually led to cancer cell death.
    - Update April 2020: Recently, it has been indicated that benzimidazole, including Methiazole and Fenbendazole play an important role in suppressing KRAS-mutant lung cancer cells (Ref.)
- Lymphoma (Ref.)
- Prostate Cancer (Ref.) and taxane-resistant prostate cancer cells (Ref.)
- Glioblastoma (Ref.1, Ref.2)

The questions, is why I would consider using Fenbendazole, a drug used for animals, when we already have Mebendazole made for use in humans that is associated to similar anticancer mechanisms? There are three major reasons for me to do that and consider trying Fenbendazole as well:

- First, as discussed above, in some diseases Fenbendazole was more effective than Mebendazole;
- Second, it is known that this type of drugs is not very well absorbed in the body and the absorption may differ from person to person (Ref.). Therefore switching between different drugs with similar expected mechanisms may make sense as one of them may be better absorbed in our specific case;
- Third, there is a good chance that the underlying anti-cancer mechanism is different for each of the drugs, even if the scientific observations suggest similar mechanisms of action (we should always remember that science represents not a complete understanding of nature, but only steps towards a better understanding).

Update December 2019: A recent study suggests that for Pancreatic Cancer, two other anti-worm drugs from the same category and used in animals, Parbendazol (brand name Verminum, Worm Guard and Helatac) and Oxibendazole, is more effective compared to Fenbendazole and Mebendazole (Ref.). While Parbendazole seems not to be on the market anymore, Oxibendazole can be found online. Here you can find this subject discussed a little more in details including discussions on what could be the relevant daily dose of Oxibendazole (Ref.).

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Update September 2019: at the beginning of 2019, some months after I wrote this post, Joe's story became viral. Here is a short interview on a TV station in US, with Joe https://www.youtube.com/watch?v=HYILnjc_wuY I am glad to see that I often addressed subjects on this website before they became known to most people.

Update May 2020: A man successfully using Fenbendazole and Artemisinin to treat his prostate cancer https://www.killingcancer.net/treatments

Fenbendazole is well tolerated in humans

Although a drug that is used for animals, according to a report available at the European Medicine Agency "Fenbendazole seems to be well tolerated in humans after oral exposure (single oral dose up to 2,000 mg/per person; 500 mg/per person for 10 consecutive days)" (Ref.)

What type and how is Fenbendazole used

Taking Panacur C granules from Merck

There are people taking it for deworming and they seem to prefer the Fenbendazole version that is meant to be used for fish (Ref.). In this case, its is used in the range of 5mg/kg/day to 10mg/kg/day.

However, on his website, Joe Tippens, shows a picture of Panacur C box from Merck, sold as Canine Dewormer, containing Fenbendazole granules 22.2%. This means every gram of granules contains 222mg of pure Fenbendazole.

Dose and treatment regime

Below I discuss the dose and treatment regime but this is only visible to registered visitors. **All visitors can easily register, for free**, using the login options located at the right side of the page (when using a desktop) or at the bottom of the page (when using mobile), where login option via Facebook account is also available. **It only takes one minute** to registered on this website, while it may take much longer to collect the information addressed here.