Improved liver function after high dose intravenous vitamin C and Helixor SC injections in a patient with hepatocellular carcinoma progressed after chemotherapy and radiation

Abstract

Background: Advanced hepatocellular carcinoma is one of the most aggressive and poorly controlled malignancies with a limited survival time. Usually, patients with advanced and progressive hepatocellular carcinoma develop deterioration of their liver functions which can be a major cause of their mortality.

Case presentation: I am reporting a case of a 71 years old male patient with an advanced hepatocellular carcinoma who had progression after transhepatic chemoembolization and radiation therapy with deterioration of liver function tests then after receiving high dose intravenous vitamin C and subcutaneous Helixor, his liver function returned to normal, and up to the moment of writing this research, he is enjoying a normal liver functions and high physical performance.

Conclusion: The use of high dose intravenous vitamin C and Helixor injections can improve the liver functions and overall physical performance in a patient with advanced and progressed hepatocellular carcinoma and deteriorating liver function.

Background

Hepatocellular carcinoma (HCC) is one of the most common causes of death from cancer, and is the main reason of death related to liver cirrhosis. More than 90% of cases of HCC are caused by liver cirrhosis. Diagnosis of HCC depends mainly on the histopathology of the liver lesions that shows the histopathological features of HCC. Alpha Fetoprotein (AFP) is a highly sensitive tumour marker that reflects the tumour burden and extent of the disease of HCC. Treatment options include surgical resection for a small lesions with a safety surgical margin and sometimes with hepatic transplantation for some cases of extensive hepatic cirrhosis, or for a large lesions with whom resection with a safety margin could be compromising to the liver functions and vitality. Locally advanced and or metastatic HCC requires a more conservative measures such as radiofrequency ablation which is more effective than local ethanol injection. Other local treatment means are trans arterial chemoembolization which is based on injection of chemotherapeutic agents through branches of the hepatic artery given the fact that HCC blood supply comes mainly from the hepatic arteries and after chemotherapy injection, an embolic agent is injected through the hepatic arteries to induce necrosis in the HCC tissues and at the same time, keep the chemotherapy in place and working for as long time as possible. Other local modalities in treatment of the HCC is the use of an intensity modulated radiation therapy (IMRT). The advent of using an IMRT in treating HCC comes from the fact the IMRT can very accurately localise the radiation beam to the tumour area(s) without much radiation exposure to the surrounding normal cells (which is mostly inevitable in all patients even with the consideration of the scattered radiation from the primary radiation beam). Recently, an established guidelines were formulated for the indications and use of the IMRT in treating HCC, mainly for those patients who are not eligible for the surgical treatment, and those who failed trans arterial hepatic chemoembolization. Systemic treatments for HCC including the newly introduced tyrosine kinase inhibitors such as Sorafenib showed a very low control rates of the HHC and also very limited survival or even quality of life improvements. The overall treatment results for locally advanced HCC are very disappointing with very low control and survival rates. It is postulated that, the mortality rates are nearly equivalent to the incidence rate.

The factors that affect management of advanced/metastatic HCC are not only related to the tumour burden/disease extent, but on other factors such as liver functions, and other cancer related symptoms such as performance status and the activity of daily living. Given the fact that most available lines of treatment of advanced HCC have a very limited efficacy if any, and also taking into consideration the possible side effects/toxicities these interventions have, not mentioning alone the cost and availability of these interventions which pose another challenge, an emergence of an alternative ways of treating HHC outside the commonly used conventional medical means have been rising recently. In 2015, Seo et al. reported in case report study a 74 years old woman with a very advanced hepatocellular carcinoma with multiple bilateral liver metastases, who failed an initial treatment with intraarterial chemoembolization then was given a high dose intravenous vitamin C (70grams) after she refused Sorafenib, a multi kinase inhibitor usually used for advanced cases of HCC. This patient received a twice weekly high dose intravenous vitamin C (HDVC) for 10 months. This patient had a complete resolution of all her pulmonary metastases and received improvements.

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The use of high dose intravenous vitamin C as an alternative cancer therapy is been in practice for many decades, and is based on many in vitro and in vivo studies, and the mechanism of its anti cancer effect stems...
from three basic mechanisms: an anti-angiogenesis effect, creation of an oxidative stress environment around the tumour from increasing the H2O2 content in the peritumour environment, and enhancing the apoptosis process. Other natural health products used against hepatocellular carcinoma include Mistletoe visco toxins and lectins. The mechanisms of action of Mistletoe in cancer therapy are many and include direct cytotoxic activity, indirect activity by stimulating the immune system and producing a cytokines such as Interleukins 1&6.

**Case summary**

A 74-years old male patient first presented to me on October 15th 2017 with an established diagnosis of an advanced hepatocellular carcinoma after he The condition started since March 2017 after he had a mild right hypochondrial pain that had no triggers or relieving factors, and also started to feel fatigued, and had insomnia. He had blood tests that revealed a slightly elevated alpha fetoprotein levels (245 KIU/L), so liver ultrasound was done that time that revealed diffuse liver fatty infiltration so, he was just followed up on a monthly basis for alpha fetoprotein (AFP). Subsequently, his AFP was consistently and progressively rising until it reached above 1000ng/ml a biopsy from one of 3 hepatic lesions (located mainly in the right hepatic lobe at segments VI, VII and VIII) Measuring maxim diameter of 4x2x1cms revealed hepatocellular carcinoma, so he received an intra arterial hepatic chemoembolization for 2-times that was followed by progression of the lesions size then he was advised to start on transhepatic radioactive isotope implantation in the next few weeks. He has no diabetes or hypertension, but he has hypercholesterolemia and extensive fatty liver which is the reason why he developed liver cirrhosis then on top he had hepatocellular carcinoma. He feels stressed out since he was diagnosed with cancer and his sleep is interrupted and when he wakes up he feels fatigued. He had no Jaundice, or pallor. Before I started his treatment, I reviewed his lab work-up (Sep 2017) which was: AFP 1926 KIU/L, CRP was 10mg/L Liver enzymes were: (all in U/L) GGT: 399, AST 41, ALT 41, and Bilirubin 29. Hb 128Gm/l. He was taking these supplements: (Varying daily doses) Black seeds, and Hemp seeds. Cannabis oil: 1-2 drops once or twice daily (Mainly daily, Dietary supplements: (Varying daily doses) Black seeds, and Hemp seeds. Cannabis oil: 1-2 drops once or twice daily (Mainly CBD oil). I advised him to start on these supplements to help him with the fight against HCC, and at the same time, to improve his energy and improve his physical performance.

Theracurmin double strength (by Bioclinic naturals company 1 Capsule (each capsule contains 60mg of the theracurmin) twice daily 15 minutes before breakfast and dinner. Astragals: 1 capsule twice daily (each 500mg) with food, and Avenar (Fermented wheat germ extract): Sachets his body weight is less than 90 KG take 1 sachet per day (each 500mg) with food. and Avemar (Fermented wheat germ extract): Sachets his body weight is less than 90 KG take 1 sachet per day (each 500mg) with food. He didn’t show further improvement of his symptoms, and was subjected to an intrahepatic radioactive implantation on November 2017, he didn’t show any improvement of signs or symptoms of his HCC, and subsequently he showed a clear progression of his HCC tumor marker (AFP) as well his liver function tests as follows: in January 22nd 2018 the values of AFP, GGT, AST, ALT, and Bilirubin were respectively: 3940, 43, 35, 29. Subsequently, this patient developed marked weakness, fatigue and a clear progression of his disease. At this point, I started him on high dose intravenous vitamin C (HDIVC) on December 2017, up to around 100 grams twice weekly and subcutaneous Helixor M starting with series I, II then IV and maximising the dose to 100mg Day 1, 150mg Day 3&5 and 200mg on days 7, 9, in addition to all oral supplements her received before. This patient continued his HDIVC, SC Helixor, and all other oral supplements for 7-months, from December 2017 until July 2018. During this time, although his AFP showed a clear disease progression as well the Liver MRI done on Feb 2nd 2018, however, and surprisingly, his symptoms got much better such as the right hypochondrial pain, fatigue, tiredness, and sleep, He was able to perform his daily life activities normally as he used to do before, such as walking, dressing and undressing and praying. What is more surprising was that his liver enzymes were back to normal range as well his hemoglobin.

The following Table illustrates the laboratory findings during the two different periods of his treatment: before starting his HDIVC and SC Helixor and 7-months after. From this Table1, it can be shown that, although he developed a disease progression, his liver enzymes (GGT, ALT, and AST) and the bilirubin, showed a gradual decline to the normal level at the end even his hemoglobin started to rise again. These findings are not medically explainable in that situation given the fact that this patient has a clear disease progression that is usually associated with a deterioration of liver functions as well his general condition. The only explanation of these findings is that, the use of high dose intravenous vitamin C and the SC Helixor contributed to the preservation of his liver functions up to the end and also contributed to his improved performance status and the high energy.

**Conclusion**

The use of high dose intravenous vitamin C (HDIVC) and Helixor patients with advanced hepatocellular carcinoma can preserve the liver functions and improve the general condition of advanced hepatic cancer patients regardless of the disease status.

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**Table 1**

<table>
<thead>
<tr>
<th>Lab work type</th>
<th>Baseline labs (Sep 2017)</th>
<th>Labs after the mid-period of treatment of HDIVC and SC helixor (June 2018)</th>
<th>Latest labs after HDIVC and SC helixor (July 2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGT</td>
<td>399</td>
<td>297</td>
<td>246</td>
</tr>
<tr>
<td>ALT</td>
<td>41</td>
<td>51</td>
<td>42</td>
</tr>
<tr>
<td>AST</td>
<td>41</td>
<td>62</td>
<td>47</td>
</tr>
<tr>
<td>Bilirubin</td>
<td>29</td>
<td>21</td>
<td>26</td>
</tr>
<tr>
<td>HB</td>
<td>128</td>
<td>119</td>
<td>124</td>
</tr>
</tbody>
</table>

GGT, gamma glutamyl transferase (U/L); ALT, alanine transferase (U/L); AST, aspartate transferase (U/L); bilirubin(umol/L); HB, hemoglobin (Gm/L).

**Recommendation**

It is highly recommended to perform this study on more patients with hepatocellular carcinoma and design a prospective randomized controlled study comparing those receiving the standard intraarterial chemotherapy versus those receiving HDIVC and Helixor to obtain a more robust clinical data.

**Acknowledgements**

None.

**Conflict of interest**

Author declares that there is no conflict of interest.

**References**