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Innovative Conceptual Idea: Human Bridge Pig. Liver Regeneration Method

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Abstract

This research paper examines the relationship between hepatitis infections and the development of liver cancer, a major cause of mortality in Hong Kong. It outlines the transmission pathways of hepatitis A, B, C, and E, and highlights medical advancements such as vaccination and biologic therapies that have significantly reduced infection rates and improved treatment outcomes. Despite these advances, liver cancer remains largely incurable, with current treatments primarily focused on symptom control rather than eliminating the underlying disease. The discussion reviews historical trends in hepatitis prevalence, particularly in Asia, and explores research efforts such as liver tissue studies conducted in Hong Kong. This paper also evaluates the role of biologic agents, including gamma globulin, in suppressing viral load and improving patient prognosis, while acknowledging the limitations of existing therapies in preventing progression to liver cancer. To address these challenges, the paper proposes an innovative stem cell–based therapeutic approach termed the "Human bridge Pig. Liver Implantation Method." This innovative method involves harvesting healthy liver tissue, culturing it into functional liver cells, and implanting it to replace diseased tissue. Additionally, a novel bridging culture concept using animal organs, particularly pig liver, is introduced to enhance scalability and feasibility of liver regeneration while minimizing immune rejection. Our novel proposal builds on the liver's natural regenerative capacity and draws parallels with existing tissue engineering practices. Although still theoretical and requiring further validation, these approaches suggest potential future directions for curative liver cancer treatment and regenerative medicine.

Keywords: *hepatitis B, liver cancer, hepatocellular carcinoma, stem cell therapy, liver regeneration, pig liver bridging culture, Mr. Liver Implantation Method, biologic agents, gamma globulin, Human bridge Pig. Liver Implantation Method, regenerative medicine.*

Introduction:

Liver cancer remains incurable to this day, and it is one of the four leading causes of death in Hong Kong. There are many causes of liver disease, such as poor dietary habits, consumption of unclean seafood, sexual contact, and unhealthy lifestyle habits, all of which increase the risk of liver disease infection. Among the many liver diseases, liver cancer is the most common and prevalent. Especially, developmental stage after hepatitis B. Hepatitis B is primarily transmitted through sexual contact. If hepatitis B is not

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properly treated (recurrent inflammation), it will gradually progress to cirrhosis, and eventually develop into liver cancer.

Among the known classifications of hepatitis, hepatitis is divided into hepatitis A, hepatitis B, hepatitis C, and hepatitis E. Hepatitis A is mainly transmitted through the consumption of unclean seafood. Hepatitis B has already been identified as a type of virus that is usually transmitted through sexual contact. Hepatitis C is mainly transmitted through the syringes of drug users, i.e., through sharing needles, and blood transmission. Hepatitis E is mainly transmitted through rats. For example, infected rats may pilfer food, leading to food contamination. Humans who consume this contaminated food will develop hepatitis E [1].

After years of research and improvement, the incidence of hepatitis B and even hepatitis C has decreased significantly in recent years, leading to a much higher cure rate. In particular, vaccines against hepatitis A and B have been developed, and the medical community has made breakthroughs in the development of a hepatitis C vaccine, which is expected to be used clinically in the near future [2].

Basically, vaccination with these four vaccines can significantly reduce the incidence and morbidity rates, achieving comprehensive protection. Regarding treatment, after years of research, the self-healing rate for hepatitis B and even hepatitis C has greatly improved. As long as hepatitis B treatment drugs, specifically "biological agents," are taken, the cure rate is generally quite high [1][2].

Discussion:

In the 1960s, population growth and low public health awareness led to a significant increase in hepatitis infection rates, making it one of the top ten diseases. Hepatitis B infection rates were actually quite high in Asia, especially in mainland China. Studies [1][2] suggest that in addition to dietary and hygiene habits among people from Guangdong and other Asian regions, the structural composition of their livers is a major contributing factor, making them particularly susceptible to hepatitis B.

Of course, related studies have not conducted more detailed research on the livers of Asians. In view of this, the University of Hong Kong began actively conducting research on the liver tissue structure of Asians, mainly Hong Kong people, around 2014. They established a liver database and collected a large number of tissue samples from Hong Kong liver disease patients, such as needle sampling, for systematic research. Professor Lai Ching-lung is a leading authority on liver diseases, and he has unique insights into this research, especially on hepatitis B. Professor Lai is a pioneer in his research. He was the first to propose using the first-generation biological agent, gamma globulin, for first-generation immunotherapy for liver disease patients.

"Gamma globulin" is a cutting-edge medical concept from the 1960s and is considered the precursor to modern biologics. Its principle involves immunotherapy through serum sampling of patients, with remarkable efficacy. After years of promotion and research, biologics have become a very mature technology, especially gamma globulin and various other types of biologics. After years of development, it is now highly mature, reliable, and has a very high cure rate. It can be said that there are now reliable drugs to treat hepatitis.

Studies have shown that gamma globulin-based biological agents can suppress the amount of viral load in the liver to a very low level, almost at an infectious level, which can be considered a significant achievement that benefits the medical community.

However, despite this, some patients infected with hepatitis may eventually develop liver cancer, an incurable disease. Liver cancer remains incurable to this day. Even with targeted therapy, the five-year survival rate is generally not high. It can be said that current liver cancer treatments are merely treating the symptoms, not the root cause. They do not address the underlying problem but only inhibit the growth of cancer cells. However, it is important to understand that cancer cells have adaptive capabilities, and targeted drugs can develop resistance over long periods of use. Therefore, the survival rate afterward is not ideal.

Innovative Conceptual Suggestion:

In view of this, this research article innovative proposes an stem cell and tissue regeneration concept. First, a small portion of the patient's healthy liver tissue is extracted, cultured, and edited in the nature of D-RNA, similar to the resemble healthy person’s tissue, then we will cultivate it in a liver-tub greenhouse, which is established for cell culture for regrowth and reproduction (liver). Similar nutrients and nutrient solutions are then transported to the artificially cultured into the (liver) stem cells. Once they have grown to a suitable size and volume, they are ready to be transplanted into the body.

Our novel innovative implantation method involves directly inserting an artificial liver into the body. The process employs a three-step approach: first, sampling; then, cultivation; and finally, implantation. This three-step unified method is named the "Mr. Liver Implantation Method." The three-step unified method involves first extracting a small portion of a healthy liver, cultivating it artificially until the artificial liver tissue grows to the appropriate size for the patient, then surgically removing the diseased tissue, and finally implanting the healthy artificial liver. This stem cell therapy is believed to be a groundbreaking theory in the medical field, and the medical community should understand this innovative approach potential, especially given the current early stages of cell medicine development. It may deserves potential widespread adoption by the medical community in the future.

Furthermore, the liver possesses have its own regenerative capacity. Unlike the heart, spleen, lungs, and kidneys, the liver has a certain degree of regenerative ability, making it a truly remarkable organ. In fact, human skin and muscles also have a certain regenerative capacity. For example, minor cuts, lacerations, or boils can heal on their own if the main wound is small. Larger wounds require surgical treatment. Currently, the medical community has discussed the principle of extracting a small piece of skin tissue from the patient, culturing it artificially, and then transplanting it. This research following this principle, the feasibility of stem cell culture potential is quite high.

Although, to date, there has been no successful medical case in the world. Moreover, if the liver is less than half its normal size, it will not have regenerative capacity.

Therefore, this research suggests utilizing a similar artificial species, such as monkey liver or pig liver, to cultivate it, e.g, starting with pig liver, to cultivate pig liver from pigs raised in a laboratory, thus potentially creating an effect called “photo-human-pig-DRNA-regeneration.” This is something worth researching in

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the scientific community. In short, the name comes from in utilizing the animate pig liver/monkey liver.

This involves a bridging culture method, to utilize the pig organ tissue as a tissue growing Hubs and culture environment to cultivate it, from human to pig (HTP) cultivate approach and from pig to human (PTH) transplant method, which could be called the Human-liver-tissue-extraction-to-pig-liver bridging culture cultivation method. This method uses a small portion of human liver cells (or liver tissue) extracted, and then transplant it and cultivate at the similar pig livers environment. The goal is to transform the pig liver into a usable human liver – essentially an artificial one. This method can avoid some physical rejection in the human body.

Since, the stem cells themselves come from the patient's (healthy part) own body, they won't experience any additional rejection of transplanted tissue. This innovative technology is akin to bypass surgery, our innovative bypass method utilizes a small portion of a healthy human liver, cultivate in the (HTP) and transplanting it (PTH) to the human body. The hope is that this liver has regenerative capabilities, allowing it to be cultured and transformed into a more human-compatible (liver) level.

Alternatively, we could describe it as a stem cell procedure involving bridging in pig liver and then culturing the stem cells. This bridging and culture method is relatively more feasible and operable than traditional laboratory culture. The potential success rate will be more significant compared to culturing in a laboratory. Of course, this novel concept involves switching D-RNA and input; that is, removing the bad tumor liver (human cancer cells) and then directly inserting healthy artificial liver (human stem cells cultured from pigs into the human body). This innovative concept is what we're discussing here as the “pig liver bridging method,” or you could call it the (HTP) to (PTH) stem cell bridging culture method.

Conclusion:

In conclusion, although significant progress has been made in the prevention and treatment of hepatitis through vaccination and biologic therapies, liver cancer remains a major global health challenge, particularly in regions such as Hong Kong. Current medical approaches are effective in controlling viral infections and slowing disease progression, but they are still limited in their ability to provide a definitive cure for liver cancer. The persistence of high mortality rates highlights the urgent need for more advanced and curative treatment strategies. The proposed stem cell–based “Human based bridge Pig. Liver Implantation Method,” alongside with the innovative concept of bridging culture using animal organs such as pig liver, offers a promising new direction in regenerative medicine. By leveraging the liver’s natural regenerative capacity and utilizing patient-derived healthy cells, this approach has the potential to reduce immune rejection and restore liver function more effectively than conventional treatments. However, these ideas remain largely theoretical and require further scientific exploration.

Future research should focus on refining stem cell technologies, improving cross-species compatibility, and ensuring efficacy in scientific applications. With continued interdisciplinary collaboration and technological advancement, these conceptual innovative strategies may eventually transform liver cancer treatment from symptomatic management to true regeneration and cure, offering new hope to patients worldwide. I hope this novel concept can one day become widespread and benefit humanity worldwide, saving lives.

Disclaimer

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References:

1. Kaewdech, A., et al. (2024). Asian perspective on hepatitis B virus and hepatitis C virus. Clinical Liver Disease. (High prevalence in Asia).
2. Parry, J. (2008). One third of hepatitis B carriers in Hong Kong have severe liver disease. BMJ. (Hong Kong-specific data).

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