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A HOLISTIC APPROACH TO PANCREATIC CANCER

A conversation with **TINGBO LIANG**, M.D., Ph.D., Head of The First Affiliated Hospital of Zhejiang University



Pancreatic cancer is a resilient killer whose survival rates have hardly improved in recent decades. It is expected to become the second biggest cause of cancer-related death globally by 2030. Without specific symptoms, early diagnosis is rare, leaving limited options for treatment. While the disease is traditionally more prevalent in western countries, China has been experiencing a surge in recent years. Tingbo Liang, an expert in hepatic, biliary, and pancreatic surgery, who heads the First Affiliated Hospital of Zhejiang University has improved chemotherapy treatment for pancreatic cancer, targeting Chinese patients, to make more people eligible for potentially curative surgery. Here, Liang discusses his comprehensive treatment strategy with patients at the centre.

Why are you focusing on pancreatic cancer?

My three decades of surgical practice started from liver transplantation. Then, with a focus on hepatic, biliary, and pancreatic surgeries, I realized that incidences of pancreatic cancer are increasing, and the survival rate is very low, as disease is often already advanced at diagnosis. Chemotherapy is usually the last resort for these patients, but typically only extends lives by a couple of months, with drug resistance and side effects common. Given that there are no targeted drugs effective for pancreatic cancer, surgery offers the only chance of cure. I have been trying to find an overarching strategy to combine surgical innovation, with other treatment options to increase survival rates.

What makes pancreatic cancer surgery so challenging?

Late diagnosis is a key issue, meaning that only a small proportion are diagnosed when the cancer can be removed by surgery. As pancreatic cancer is very likely to spread, usually more than 30% of patients have metastasis when diagnosed, ruling out surgery. Moreover, given the anatomically complex positioning of the pancreas, which is surrounded by many blood vessels, surgery can be tricky. Damage to key arteries

may lead to serious bleeding, or even tissue death in the connected organs. And when the removal of cancerous tissues is not complete, recurrence will be common. We want to make more patients eligible for potentially curative surgery, and to lower the risks of complications and recurrence.

What is your solution?

Traditionally, front-line chemotherapy for pancreatic cancer involves gemcitabine. Then, FOLFIRINOX, a combination therapy involving four different drugs, becomes the standard of care. It is also used as adjuvant chemotherapy after surgery to improve survival outcome. In my exchange with international experts, I discussed chemotherapy before surgery to control cancer growth. However, given its high toxicity, many Chinese physicians were reluctant to use FOLFIRINOX even as front-line treatment. They worried that its side effects might be stronger on Chinese patients, and many advanced-stage patients could not endure the gruelling course.

My solution was a modified regime for Chinese patients, with lower doses to manage toxicity, which proved to maintain efficacy. We became the first in China to adopt the FOLFIRINOX regime, with which, many advanced patients

became eligible for resection of pancreatic cancer, bringing a chance of cure. Those who remained ineligible also saw their average life expectancy extending from eight or nine months to 16-18 months. We also used postoperative chemotherapy to reduce recurrence rate.

What is the latest development of your strategy?

As the first to propose the concept of comprehensive treatment of pancreatic cancer in China, and to combine surgery, chemotherapy and even radiotherapy, we are glad to see more Chinese physicians adopting this holistic strategy. Our study has also shown the beneficial effect of combining chemotherapy and pancreatic surgery on the elderly.

More recently, we integrated pancreatic surgery with autologous intestinal transplantation procedure in selected patients. For a 70-year-old patient with advanced-stage cancer invading a superior mesenteric artery, we first used chemotherapy to reduce the tumour. To completely remove the cancer on the artery, while maintaining blood supply to the small intestine, our innovation was to take out the patient's small intestine while performing the resection of diseased pancreas and duodenum, and then connect the cleaned small

intestine with the remaining blood vessel. Working closely with our experts in small intestine transplant, the surgery was successful, and the patient recovered fully.

How do you incorporate the multidisciplinary team (MDT) model in clinical practices?

The above case, capitalizing our strengths in both pancreatic surgery and small intestine transplant, is a perfect illustration of the value of the MDT model. At our hospital, we encourage MDT meetings to make sure that all available treatment options are considered for patients of cancer and other severe diseases. A dedicated clinical research centre has been set up to promote the MDT model and pioneer innovative, systematic patient care solutions, like the one we have for pancreatic cancer. Through rigorous clinical research, we hope to streamline our procedures, maximizing the advantage of our strategy.

I believe in breaking disciplinary silos. We need a structural reform to promote patient-centred care.

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LEADING THE WAY IN HOSPITAL CARE

The First Affiliated Hospital of Zhejiang University, since its establishment in 1947, has rapidly evolved into a top-ranked comprehensive hospital in China, integrating medical research, teaching, disease prevention, treatment, and public healthcare. It also boasts one of the nation's largest centres for hepatic, biliary, and pancreatic surgery.

RENOWNED SUCCESSES:

- Housing nearly **5,000** beds in **six** designated campuses
- Ranked among the top **10** hospitals in China for **16** consecutive years in the number of published SCI papers, including **five** times in the top three
- Numerous national science and technology awards

STRENGTHS IN HEPATIC-BILIARY-PANCREATIC (HBP) SURGERY:

- **Nine** dedicated wards and **315** beds for HBP patients
- **> 6,000** surgeries performed annually, including hepatectomy and pancreatectomy
- One of the world's largest liver transplantation centres, having performed **> 2,800** liver transplants, along with other complex procedures
- Equipped with state-of-the-art facilities, including ICU, Class 100 laminar airflow operating rooms, an endoscopic therapy centre, and an imaging centre for non-invasive surgeries
- Having received **one** first prize, and **two** second prizes of the National Science and Technology Progress Awards



Under the leadership of Tingbo Liang, the hospital spearheads multimodal therapies and precision treatment for hepatic, biliary, and pancreatic cancers. Projects it has undertaken range from studies on tumour microenvironment and tumour immunity, to drug resistance and organ function protection for transplants.

Liang's team is dedicated to establishing a comprehensive treatment system for pancreatic cancer, integrating innovations in diagnosis, treatment, evaluation and postoperative management to improve clinical care. Their comprehensive approach has linked basic and translational research, leading to remarkable clinical success.

PIONEERING PANCREATIC CANCER DIAGNOSIS AND TREATMENT

Proposed the 'Zhejiang Protocol', a comprehensive approach for treatment

Performed post-chemotherapy radical pancreatic surgery with autologous intestinal transplantation

Introduced liquid biopsy for pancreatic cancer

Developed intelligent cancer evaluation strategies

Promoted national adoption of recovery acceleration strategies

Pioneered treatment for pancreatic fistula

Uncovered drug resistance mechanisms

Proposed new nanodrugs

