

## PRESS RELEASE

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### **Scientists confirm efficacy of a combination therapy for advanced liver cancer**

*A procedure that cuts off blood supply to tumors improves the effectiveness of a drug for advanced-stage liver cancer, scientists show*

**Researchers from Taiwan and Japan, led by Dr Victor Kok of Kuang Tien General Hospital and Asia University Taiwan, found that when the anticancer drug sorafenib was combined with TACE, a radiological treatment procedure, patients with liver cancer had higher survival. This result comes from the largest population-based study available on this topic and will help doctors improve existing therapies for liver cancer, which kills thousands of people worldwide.**

Liver cancer affects hundreds of thousands of people annually, and there are few viable therapies for the advanced stages of its most common form—hepatocellular carcinoma. A drug called sorafenib improves overall survival in patients with advanced hepatocellular carcinoma and is considered a standard treatment, but questions remain regarding how we can increase its effectiveness. Right now, the two available clinical trials show that sorafenib treatment increased overall survival by 6.5 to 10.7 months.

During the past decade, scientists began to test whether a radiological procedure called *transarterial chemoembolization* (TACE) can raise patient survival even further. This therapy involves blocking blood vessels leading to a tumor, depriving it of blood and thereby killing the malignant cells. When performed alone, TACE could stop tumors from spreading. However, only a few experiments have directly tested how addition of TACE to a sorafenib drug treatment would fare in improving survival compared with sorafenib alone. These experiments do not agree, with the only major clinical trial finding no increase in patient survival after combining TACE with sorafenib. However, adding sorafenib after TACE seems to increase indicators of therapeutic effectiveness.

To untangle these different outcomes, scientists from Taiwan and Japan, led by [Dr Victor Kok](#) from Kuang Tien General Hospital Cancer Center and Asia University Taiwan, performed [the first large, national-level, population-based cohort study](#) (published in the journal *Cancers*) examining the influence of TACE on the effectiveness of sorafenib against liver cancer. A cohort study involves following a group of people that share a characteristic (in this case, liver cancer) over a set period and periodically measuring relevant data from them (e.g., response to treatment). The scientists also used a statistical method called *propensity matching* to eliminate confounding factors (e.g., patient age, sex, socioeconomic status) that could affect between-group differences in survival beyond the effects of sorafenib and TACE. They

obtained data on liver-cancer patients from the Taiwan National Health Insurance Research Database, which is very representative of Taiwan's population (99.9% of the island's population is enrolled in national health insurance).

Dr Victor Kok comments, "real-world data for this treatment combination is long overdue, and here we aimed to provide empirical evidence on whether sorafenib+TACE is actually more effective than sorafenib alone. Our work can fuel further research aimed at understanding the molecular mechanisms underlying any synergistic effects of sorafenib and TACE."

After tracking the data of 2112 Taiwanese patients until their death or the end of the study, Dr Kok and colleagues identified a 26% decrease in mortality when TACE was added to sorafenib treatment, compared with sorafenib treatment alone. More specifically, six months and one year after treatment, median overall survival was 80.3% and 53.5%, respectively, in the patients treated with sorafenib+TACE, whereas it was 54.4% and 32.4% in patients treated with sorafenib alone. The improvement was present regardless of whether patients received only one session of TACE or more. Additionally, median overall survival among the sorafenib-only patients was similar to what other researchers found in the only other clinical trial that had a comparable population, suggesting that sorafenib's anti-cancer effects are consistent. What's more encouraging—patients appeared to tolerate the combination treatment, because negative side-effects were similar between patients treated with sorafenib alone or with sorafenib+TACE.

This real-world study provided important confirmation that sorafenib interacts with TACE to control the spread of malignant liver tumors. Dr Kok explains, "Right now, oncologists aren't necessarily offering TACE as a treatment option because the evidence for its effectiveness isn't fully developed. But here, we've used a very large dataset to show that TACE can be added to a sorafenib-based treatment and improve its outcome. We're hoping that this will signal an advancement in liver cancer therapy, while also encouraging more research on the molecular mechanisms of exactly how sorafenib synergizes with TACE to control liver tumors. A better understanding of the underlying processes responsible for this additive, positive effect could help us identify further treatments."

## Reference

Titles of original paper:	<b><i>Sorafenib with Transarterial Chemoembolization Achieves Improved Survival vs. Sorafenib Alone in Advanced Hepatocellular Carcinoma: A Nationwide Population-Based Cohort Study</i></b>
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**About Professor Victor C. Kok**

Dr Kok is an assistant professor at Asia University Taiwan (since 2014) and a board-certified physician who heads the Medical Oncology division at Kuang Tien General Hospital (since 2011). He's also the Medical Director of Kuang Tien General Hospital Cancer Center. He specializes in medical oncology, cancer epidemiology, hematology, internal medicine, and population-based disease informatics. An editor of multiple scientific journals, including *Frontiers in Oncology*, *Frontiers in Pharmacology*, and *World Journal of Clinical Oncology*, Dr Kok has published over 300 scientific articles. Dr Kok is also a member of multiple scientific societies, such as the Japanese Cancer Association and the International Epidemiological Association; he is a senior member of the American Society of Clinical Oncology.