News Release

Title

The feasibility and effectiveness of multidrug neoadjuvant chemotherapy for advanced pancreatic cancer

Key Points

○ Although surgical resection is an only curative option for pancreatic cancer, the postoperative 5-year survival remains approximately 30%. Pre- and post-operative chemotherapy has been developed to improve survival of the patients.

○Recently, multidrug chemotherapy has been developed; however, the effectiveness of the use of these therapies as neoadjuvant (preoperative) chemotherapy has been unclear.

○Our clinical study revealed feasibility and effectiveness of multidrug chemotherapy in a neoadjuvant settings. This treatment will be the standard therapy for advanced pancreatic cancer.

Summary

Prof. Tomoki Ebata (Division of Surgical Oncology, Department of Surgery) in Nagoya University Graduate School of Medicine (Dean: Dr. Kenji Kadomatsu) and Dr. Junpei Yamaguchi (Lecturer, Division of Surgical Oncology, Department of Surgery, Nagoya University Graduate School of medicine) revealed that the feasibility and effectiveness of multidrug neoadjuvant chemotherapy for advanced pancreatic cancer.

Pancreatic cancer is one of the most severe malignant disease and surgical resection is an only curative option. However, the 5-year postoperative survival remains approximately 30% and many patients with advanced pancreatic cancer cannot undergo surgical resection. Thus, novel therapeutic approach for advanced pancreatic cancer is necessary. Recently pre- and post-operative chemotherapy have demonstrated therapeutic superiority and become standard treatment. Although multidrug chemotherapies for unresectable pancreatic cancer have been developed, their effect as a neoadjuvant setting has been elusive. This is because (1) frequent adverse event might impede surgical safety, (2) the disease might progress during the chemotherapy, and (3) it is unknown how much the chemotherapies improve the survival of patients. Our study was designed to prove the safety and survival benefit of this treatment, revealing that the therapy is feasible with the complete resection rate of 70%, and the 3-year survival was as high as 55%. This treatment will be the standard therapy for advanced pancreatic cancer. This work was published online in *Annals of Surgery* on March 9, 2022.

Research Background

Pancreatic cancer is one of the most severe malignant disease and surgical resection is an only curative option. However, the 5-year postoperative survival remains approximately 30% and many patients with advanced pancreatic cancer cannot undergo surgical resection.

Pancreatic cancer can be classified to 3 categories based on their resectability; (1) resectable pancreatic cancer, (2) borderline-resectable pancreatic cancer, and (3) unresectable pancreatic cancer. Pre- and Post-operative chemotherapy (GS and S1) is current standard of care for resectable pancreatic cancer and chemotherapy and/or radiotherapy is for unresectable one. There has been established treatment for borderline-resectable pancreatic cancer.

Recently multidrug chemotherapy has been developed for unresectable pancreatic cancer, namely FOLFIRINOX and GnP. The advantage of these chemotherapy in a neoadjuvant settings has been unclear because (1) frequent adverse event might impede surgical safety, (2) the disease might progress during the chemotherapy, and (3) it is unknown how much the chemotherapies improve the survival of patients. Our study was designed to prove the safety and survival benefit of this treatment.

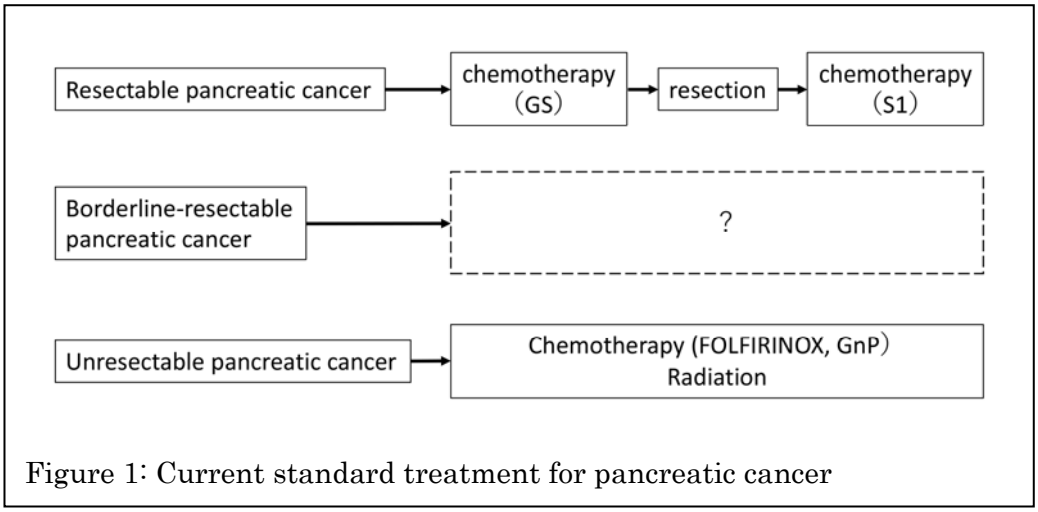

Figure 1: Current standard treatment for pancreatic cancer

Research Results

This study (NUPAT-01) included 51 patients who were diagnosed as borderline-resectable pancreatic cancer. Patients were administered with FOLFIRINOX or GnP for 2 months, followed by surgical resection. The frequency of adverse events due to chemotherapy was compatible with the data reported previously, and 46 patients (84%) successfully underwent surgical resection. The surgical complications were found in 13 patients (30%) with no mortality noted. Pathological examination revealed 33 patients (67%) had undergone complete resection, and 2 patients were found to have no cancer cells remained.

The 3-year survival was 54.7% and median survival time was 40 months. This is relatively long compared to previous reports showing almost 10 months of median survival time. There was no significant difference in overall survival between FOLFIRINOX and GnP, while disease-free survival was better in FOLFIRINOX than GnP.

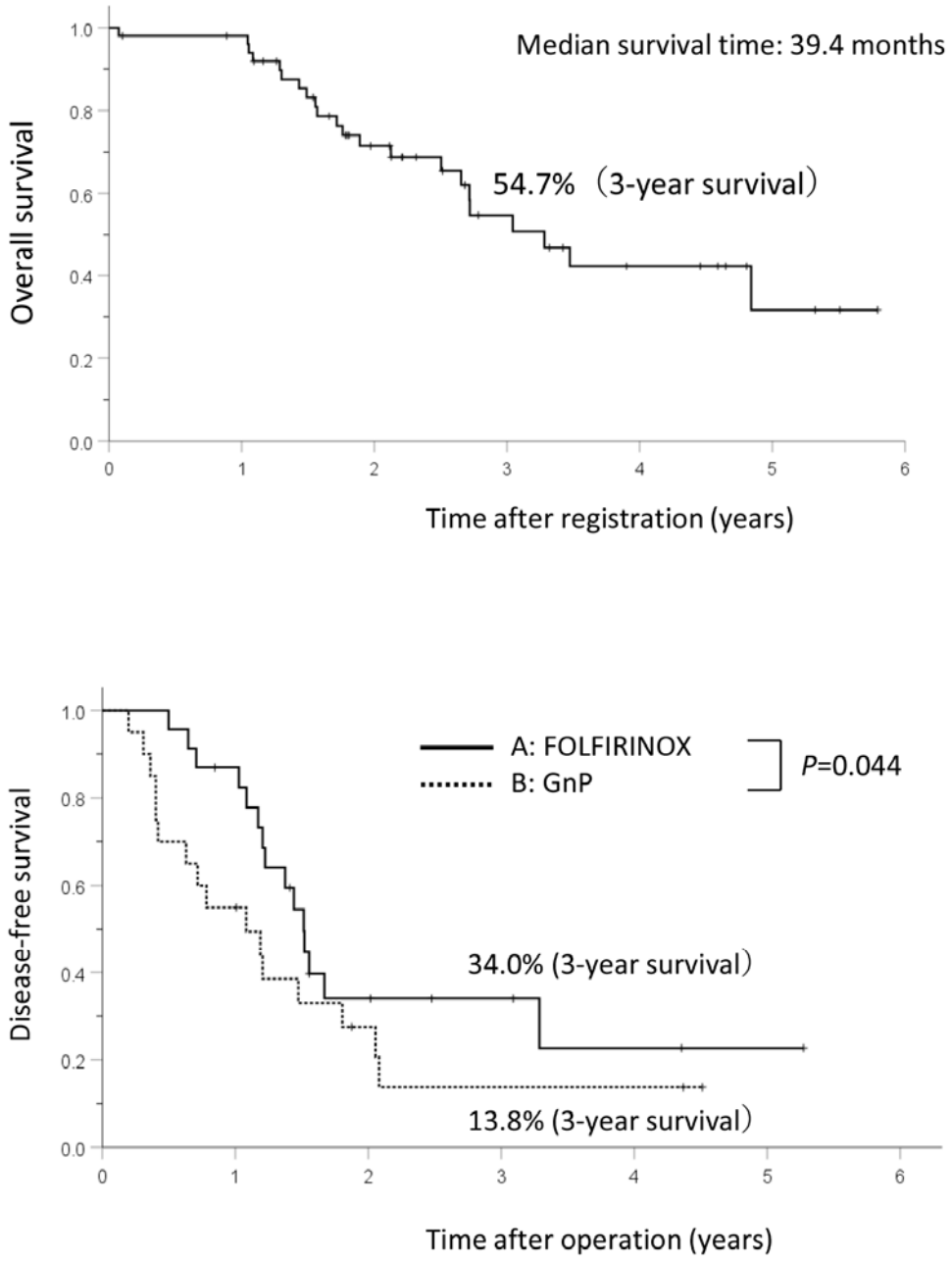

Figure 2: Survival of the patients

Research Summary and Future Perspective

This study revealed that multidrug chemotherapy as neoadjuvant treatment was feasible and effective. Since relapse cases were found frequently, we have to seek for more effective treatment, such as the addition of radiotherapy in neoadjuvant settings.

Publication

Junpei Yamaguchi, Yukihiro Yokoyama, Tsutomu Fujii, Suguru Yamada, Hideki Takami, Hiroki Kawashima, Eizaburo Ohno, Takuya Ishikawa, Osamu Maeda, Hiroshi Ogawa, Yasuhiro Kodera, Masato Nagino, and Tomoki Ebata. Results of a phase II study on the use of neoadjuvant chemotherapy (FOLFIRINOX or gemcitabine with nab-paclitaxel) for borderline-resectable pancreatic cancer (NUPAT-01). *Annals of Surgery*, In Press.

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https://www.med.nagoya-u.ac.jp/medical_J/research/pdf/Ann_220310.pdf