International Journal of Inflammation, Cancer and Integrative Therapy

Case Study Open Access

In Advanced Lung Cancer and Idiopathic Interstitial Pneumonias, Chemotherapy vs the Best Supportive Care: A Retrospective Multi-Center Cohort Study

Atushi Miyahmoto*

Department of Respiratory Medicine, Respiratory Centre, Toranomon Hospital, 2-2-2 Toranomon Minato-ku, Tokyo, 105-8470, Japan

Abstract

Background: In patients with advanced-stage lung cancer and IIP, the clinical questions regarding whether chemotherapy as the initial treatment improves overall survival (OS) and whether it increases the occurrence risk of acute exacerbation of idiopathic interstitial pneumonia (IIP) remain unanswered. Given that chemotherapy-related acute exacerbation of IIP may be a direct cause of mortality in these patients, this study addresses these issues.

Methods: We enrolled 1003 patients from 110 Japanese medical facilities and gathered clinical data from 707 and 296 chemotherapy patients (men: women, 645:62; mean age, 70.4 ± 6.9 years) and BSC (men: women, 261:35; groups' mean ages were 75.2 7.8), respectively. Using patient demographic information (age, sex, smoking status, performance status, history of acute exacerbation of IIP, desaturation on exertion, clinical diagnosis of IIP, high-resolution computed tomography findings, serum fibrotic markers, pulmonary function status, and lung cancer histopathology), we created 222 matched pairs from both groups. To determine whether chemotherapy increased the risk of an acute exacerbation of OS or IIP, respectively, matched data were used to conduct either logistic or Cox regression analyses.

Results: Chemotherapy improved OS in the well-matched cohort (hazard ratio: 0.629, 95 percent confidence interval 0.506–0.783, p < 0.0001); notwithstanding, it included critical intense intensification of IIP (chances proportion: 1.787, 95% CI: 1.026–3.113) when contrasted with BSC.

Conclusions: Chemotherapy has the potential to enhance OS in patients with advanced IIP and lung cancer when compared to BSC; however, it raises the possibility of an acute IIP exacerbation.

Keywords: Lung cancer; Idiopathic interstitial pneumonia; Acute exacerbation; Chemotherapy; Interstitial lung disease

Introduction

Patients with idiopathic interstitial pneumonia (IIP) are more likely to develop lung cancer Idiopathic pneumonic fibrosis (IPF) is the most common type of IIP. Compared to patients with only IPF, lung cancer development has a negative impact on prognosis. Cellular breakdown in the lungs causes demise in around 10% of patients with IPF. Patients with advanced-stage or post-operative recurrent lung cancer and IIP prefer chemotherapy [1]. However, because of their poor respiratory condition or the severity of their IIP, some patients may receive the best supportive care (BSC) as their initial treatment. Acute exacerbation is known to be fatal in IIP patients, and it typically occurs in IPF patients notwithstanding, the potential for intense compounding has been accounted for in other fibrotic types of IIP regardless of cellular breakdown in the lungs [2]. During the treatment of patients with IIP and lung cancer, acute exacerbation remains a challenging issue.

In patients with advanced lung cancer and IIP, the rate of chemotherapy-related acute exacerbation varies. Without comparing patients treated with BSC to those treated with chemotherapy [3], some retrospective analyses included patients with IIP and lung cancer, regardless of whether an acute exacerbation occurred,. Carboplatin-containing regimens have recently been the focus of prospective single-arm studies in IIP and advanced lung cancer patients. Between 5.4% and 10% of interstitial pneumonia cases are acutely exacerbated [4, 5]. However, due to the small number of acute exacerbation cases in each prospective study, the mortality rate from acute exacerbation could not be determined conclusively. As a result, there is still insufficient evidence regarding the acute exacerbation of IIP caused by chemotherapy. Besides, whether chemotherapy builds the gamble of intense fuel contrasted with BSC in patients with cutting edge or post-employable repetitive cellular breakdown in the lungs stays obscure [6]. Additionally, given that chemotherapy-related acute exacerbation may be a direct cause of mortality in these patients, it remains to be determined whether chemotherapy improves overall survival (OS) in comparison to BSC as the initial treatment. There is a lack of data on the natural course of IIP and lung cancer in patients who receive BSC alone as their first treatment. Patients who receive BSC alone may experience an acute exacerbation that was not brought on by chemotherapy, and some of these patients may pass away as a result of an acute exacerbation rather than lung cancer progress [7].

Case presentation

Study participants

From January 2012 to December 2013, we gathered data from patients younger than 20 years old who had received chemotherapy

***Corresponding author:** Atushi Miyahmoto, Department of Respiratory Medicine, Respiratory Centre, Toranomon Hospital, 2-2-2 Toranomon Minato-ku, Tokyo, 105-8470, Japan, E-mail: atushimioto@gmail.com

Received: 29-May-2023, Manuscript No. ijm-23-98272; **Editor assigned:** 01-June-2023, PreQC No. ijm-23-98272(PQ); **Reviewed:** 15-June-2023, QC No. ijm-23-98272; **Revised:** 22-June-2023, Manuscript No. ijm-23-98272(R); **Published:** 29-June-2023, DOI: 10.4172/2381-8727.1000228

Citation: Miyahmoto A (2023) In Advanced Lung Cancer and Idiopathic Interstitial Pneumonias, Chemotherapy vs the Best Supportive Care: A Retrospective Multi-Center Cohort Study. Int J Inflam Cancer Integr Ther, 10: 228.

or BSC as their initial treatment and were pathologically diagnosed with stage IV lung cancer. Lung cancer was diagnosed either before or concurrently with IIP. The Toranomon Hospital's local ethics committee, and the local committees of the collaborating facilities approved the study's protocol. Due to the retrospective nature of the study, the committee decided not to require informed consent [8].

Study design

In accordance with the revised Declaration of Helsinki, this retrospective multi-center cohort study was carried out at 110 facilities. The Japanese Respiratory Society (JRS) citizen hospitals and academic medical centers both contributed to this study.

We reflectively checked on the patients' clinical records, including their segment qualities. Radiologic analyze were made in view of high-goal registered tomography (HRCT) designs, as per the worldwide agreement rules given by the American Thoracic Culture (ATS)/ European Respiratory Society (trama centers)/JRS/Latin American Thoracic Affiliation (ALAT) in 2011: common interstitial pneumonia (UIP) design, conceivable UIP design, or conflicting with UIP design. Last but not least, we looked into the causes of death. Operating system was characterized as the date from cellular breakdown in the lungs conclusion to clinical result [9]. The cellular breakdown in the lungs analysis was characterized as the date of clinically affirmed stage IV or post-usable repeat of the illness notwithstanding the pathologic finding. The patients' overall condition was shown by the Eastern Cooperative Oncology Group's performance status (PS) system. During or as close to the diagnosis of lung cancer as possible, clinical data, such as the results of pulmonary function tests, serum examinations, and the presence or absence of desaturation on exertion, were collected [10].

Results

We divided the remaining 1003 patients into the chemotherapy (n = 707) and BSC (n = 296) groups based on their initial treatment, excluding 30 patients who were ineligible (Supplemental Figure A). The main characteristics of the patients are shown. 71.8 years was the average age; The majority of patients were men (M/F = 906/97) with good PS (0/1/2) 257/482/264). A mean smoking index of 56 pack-years was reported by approximately 96% of the patients. IPF (n = 593) was the primary clinical diagnosis for the IIP. The majority of patients did not receive IIP treatment. Adenocarcinoma, followed by squamous and small cell carcinoma, was the most common pathologic type of lung cancer. Anaplastic lymphoma kinase gene re-arrangement and epidermal growth factor receptor gene mutations were found in 15 and 2 patients, respectively. However, the majority of patients were not evaluated for gene mutations. 365 patients received second-line chemotherapy all together.

Discussion

Regardless of lung cancer histology, we discovered that chemotherapy as the initial treatment improved OS in comparison to BSC. Conventional platinum-based regimens are feasible, valid, and associated with a relatively good response rate and progression-free survival, as demonstrated by small-scale, single-arm prospective studies on specific carboplatin-containing regimens. However, due to the relatively small sample sizes, these studies probably did not have enough power to demonstrate an effect on the OS [11]. Lung cancer treatment with prospectively reported carboplatin-containing regimens may be a reasonable first-line treatment, according to these reports and our findings. Notwithstanding, further examination in regards to antagonistic occasions other than intense fuel and direct correlation of carboplatin-containing regimens with different regimens is important [12].

Our discoveries uncover that contrasted with BSC, chemotherapy is related with huge intense fuel risk in patients with cutting edge cellular breakdown in the lungs and IIP. Chemotherapy may be the cause of an acute exacerbation of IIP, according to previous findings from small, single-center retrospective studies. Clinical application restrictions may be imposed worldwide as a result of reports that chemotherapeutic agents cause acute exacerbations. However, acute exacerbation risk factors need to be reevaluated given that chemotherapy improved OS in the current study [13]. A few studies have examined acute exacerbation risk factors in patients with combined IIP and lung cancer, but these studies have primarily focused on patients with IPF alone. A comparison of the concurrent risk of acute exacerbation based on treatments, such as chemotherapy or BSC, was not carried out in the study cohorts, which typically only included chemotherapy patients. Thusly, starting here of view, recently announced huge gamble factors, for example, old age and male sex; younger age [14]. HRCT UIP patterns; a pathological type of NSCLC; as well as impaired pulmonary function, the results of multivariate logistic regression analysis for acute exacerbation in patients with advanced lung cancer and IIP remain inconclusive.

Conclusion

In comparison to BSC, chemotherapy was significantly associated with an acute exacerbation of IIP and improved OS regardless of subgroup.

Acknowledgement

None

Conflict of Interest

None

References

1. Vonlanthen R, Lodge P, Barkun JS, Farges O, Rogiers X, et al. (2018) Toward a consensus on centralization in surgery. Ann Surg 268: 712-724.
2. Cooper M, Newman NA, Ibrahim AM, Lam E, Herman JM, et al. (2013) Unnecessary tests and procedures in patients presenting with solid tumors of the pancreas. J Gastrointest Surg 17: 1218-1223.
3. Strijker M, Mackay TM, Bonsing BA, Bruno MJ, van Eijck CHJ, et al. (2020) Establishing and coordinating a nationwide multidisciplinary study group: lessons learned by the Dutch pancreatic cancer group. Ann Surg 271: 102-104.
4. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, et al. (2007) The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. Lancet 370: 1453-1457.
5. Dua MM, Tran TB, Klausner J(2015) Pancreatectomy with vein reconstruction: technique matters. HPB 17: 824-831.
6. Lee DY, Mitchell EL, Jones MA (2010) Techniques and results of portal vein/ superior mesenteric vein reconstruction using femoral and saphenous vein during pancreatic oduodenectomy. J Vasc Surg 51: 662-666.
7. Umino Y, Mizuma M, Akamatsu D (2021) Reconstruction of portal vein and superior mesenteric vein using superficial femoral vein graft in surgical resection of pancreatic head cancer-A case report. Gan To Kagaku Ryoho 48: 1783-1785.
8. Kostov G, Dimov R (2021) Portal vein reconstruction during pancreaticoduodenal resection using an internal jugular vein as a graft. Folia Med (Plovdiv) 63: 429-432.
9. Kallenberg FGJ, Ijspeert JEG, Bossuyt PMM, Aalfs CM, Dekker E (2015) Validation of an online questionnaire for identifying people at risk of familial and hereditary colorectal cancer. Familial Cancer 14: 401-410.
10. Lu KH, Wood ME, Daniels M, Burke C, Ford J, et al. (2014) American Society

of Clinical Oncology Expert Statement: collection and use of a cancer family history for oncology providers. J Clin Oncol 32: 833-840.

11. Lucas AL, Tarlecki A, Van Beck K, Lipton C, RoyChoudhury A, et al. (2017) Self-Reported Questionnaire Detects Family History of Cancer in a Pancreatic Cancer Screening Program. J Genet Couns 26: 806-813.

12. Macklin S, Durand N, Atwal P, Hines S (2018) Observed frequency and challenges of variant reclassification in a hereditary cancer clinic. Genet Med 20: 346-350.

13. Kleive D, Berstad AE, Verbeke CS (2016) Cold-stored cadaveric venous allograft for superior mesenteric/portal vein reconstruction during pancreatic surgery. HPB 18: 615-622.

14. Zhang XM, Fan H, Kou JT (2016) Resection of portal and/or superior mesenteric vein and reconstruction by using allogeneic vein for pT3 pancreatic cancer. J Gastroenterol Hepatol 31: 1498-1503.