

# Clinical studies of cerebral infarction in our cancer patients

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## Introduction

It is well known that cerebral infarction occurs frequently in cancer patients and the mechanisms are various. However, there is not so much epidemiological data and no guideline for diagnosis and treatment, so we often have difficulty to perform clinical medication.

## Methods

To assess the incidence and type of cerebral infarction in patients with cancer, the hospitalized active cancer patients who experienced acute cerebral infarction from January 2014 to December 2016 in Tokyo Metropolitan Komagome Hospital were collected and clinical data were analyzed retrospectively.

## Results

### Patient characteristics

Acute cerebral infarction was diagnosed in 76 patients with cancer and 98 without cancer.

•Patients with cancer, n=76

Gender: men 46 (60.5%), women 30 (39.5%)

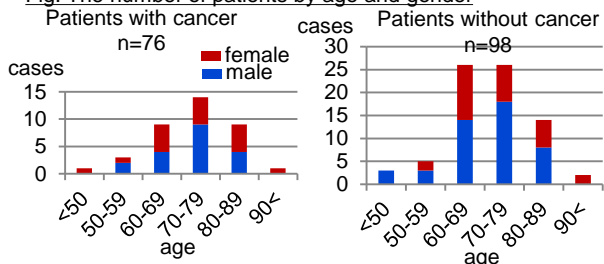
Age: mean 71.3y, range 37-94y

•Patients without cancer, n=98

Gender: men 53 (54.1%), women 45 (45.9%)

Age: mean 72.6y, range 30-100y

Fig. The number of patients by age and gender



### Primary cancer and stage of cancer

Lung cancer (19(25%)) was the most common primary cancer followed by colon (9(10.5%)), pancreas and esophagus cancer (6(7.9%) each), and 58(77%) were StageIV.

Fig. Number of patients of cerebral infarction by primary cancer

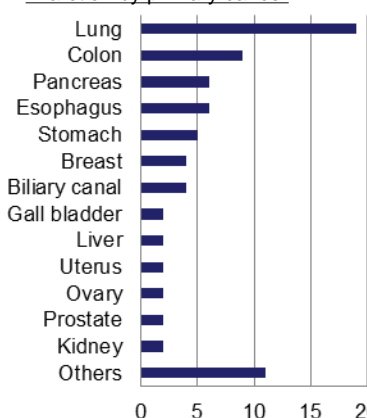
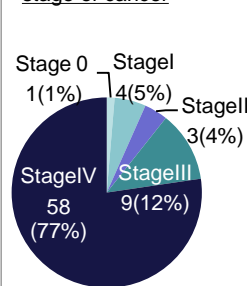


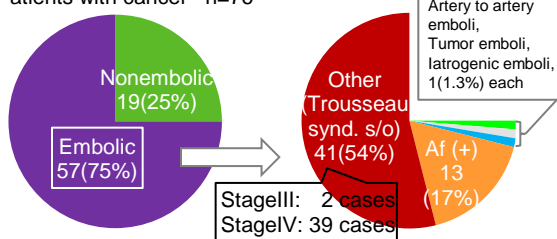
Fig. Number of patients of cerebral infarction by stage of cancer



### Mechanism of cerebral infarction and treatment

Fig. Mechanism of cerebral infarction

Patients with cancer n=76



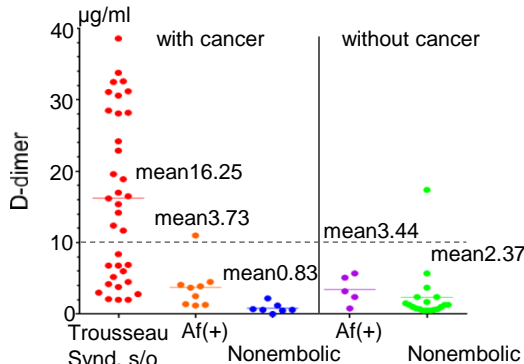
57(75%) infarctions were embolic and 19(25%) were nonembolic in patients with cancer, whereas 11(11%) were embolic and 87(89%) were nonembolic in those without cancer. In 41 embolic infarctions with cancer, cancer-related coagulopathy (Trousseau syndrome) was considered as etiology. 39/41(95%) cases considered Trousseau syndrome were with stageIV cancer and 2/41 cases with stageIII cancer. No antithrombotic therapy was taken in 33/76(43%) cases with cancer because of the hemorrhagic or the poor prognosis of cancer.

## Results

### Fibrinolytic marker

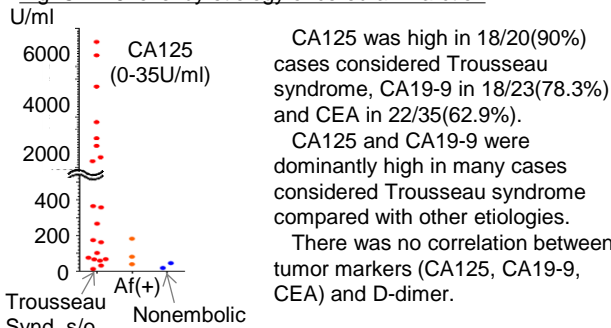
D-dimer were tested in 35/41 cases considered Trousseau syndrome. In all 35 cases D-dimer were elevated and exceeded 10µg/ml in 21/35(60%) cases.

Fig. D-dimer level by etiology of cerebral infarction



### Tumor markers

Fig. CA125 level by etiology of cerebral infarction



### Prognosis

The process of patient was observed in 34/41 cases considered Trousseau syndrome and 15/19 cases of nonembolic infarction with cancer. 24/34(70.6%) patients considered Trousseau syndrome died within 60 days, whereas 13/15(86.7%) patients of nonembolic infarction survived more than 180 days after cerebral infarction. The median survival of 34 cases considered Trousseau syndrome was 56.7 days (95%CI 36.6 to 76.9) from the onset of cerebral infarction.

Survival duration had a poor negative correlation with D-dimer level, but that was not statistically significant.

Fig. Survival duration by etiology of cerebral infarction with cancer

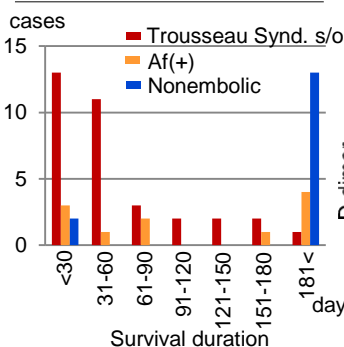
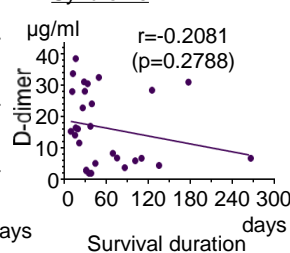


Fig. Relationship between D-dimer level and survival duration of patients considered Trousseau Syndrome



## Conclusions

Embolism was the commonest mechanism of cerebral infarction in patients with cancer, due primarily to hypercoagulability. It is said that elevated CA125 and CA19-9 levels may correlate with the degree of hypercoagulability, but the correlation between tumor markers and D-dimer level was not found in this study.

In most cases considered Trousseau syndrome, patients had far advanced stage cancer and the outcome was primarily determined by the underlying cancer. Further studies of cerebral infarction with early stage cancer are required to assess the anticoagulant treatment effect.

## References

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- 3) Cestari DM, et al. Stroke in patients with cancer. Incidence and etiology. *Neurology*. 2004; 62: 2025-2030.