



## POSTOPERATIVE FIBRINOGEN DEFICIENCY AFTER SURGICAL REMOVAL OF INTRACRANIAL TUMORS : PREVALENCE, RISK FACTORS AND PROGNOSIS

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### Background :

Postoperative Fibrinogen deficiency after surgical removal of brain tumor can cause potentially serious complications, such as intracranial hematoma, and worsen patient's outcome. The aim of our study was to determine the prevalence of hypofibrinogenemia after resection of intracranial tumor, to identify the risk factors for this abnormality, and to evaluate the prognosis of patients with this hemostasis disorder.

### Methods :

- **type of study** : Prospective, descriptive study including 120 patients, recruited between march 2022 and december2022.
- **inclusion criteria:** Age>2 ans, proposed for removal of intracranial tumor.
- **Exclusion criteria:** Patients who refused to join our study, Pregnant women, preoperative fibrinogen deficiency, Patients with acquired or constitutional hemostasis disorder and Patients with hepatocellular insufficiency.
- **Protocol** : We determined the fibrinogen level the day before the procedure, at H1, and at H24 postoperatively. We determined the prevalence of postoperative hypofibrinogenemia. Postoperative complications, neurological status of the patient and mortality at three months were subsequently recorded.

- **Outcomes** : Prevalence of hypofibrinogenemia after resection of an intracranial tumor. Mortality and postoperative complications in patients operated on brain tumors and having had postoperative hypofibrinogenemia.
- **Statistical Analysis:** For univariate statistical analysis, we used the student t test to compare quantitative variables and the Fisher-corrected Chi test to compare qualitative variables. We used binary logistic regression for multivariate analysis. The significance threshold (P) was set at 0.05.

### Results :

- One hundred twenty patients were included .
- Average age: 51 14 years, sex ratio at 0.45
- Our study showed that 40% of patients (48) had an immediate postoperative fibrinogen deficiency (first hour postoperatively).
- Four factors were found to be independent predictors of postoperative fibrinogen deficiency after resection of a brain tumor: the meningioma histological type, the prolonged duration of surgery (greater than 195 minutes), the use of antiepileptic preoperatively and the use of Surgicel as an intraoperative hemostatic product (table 1).
- Postoperative hematoma and the sensory-motor deficit were significantly associated with postoperative fibrinogen deficiency (p<0,001).

**Table1: Independent predictor factors of hypofibrinogenemia after resection of a brain tumor**

	OR	IC	P
<b>Meningioma</b>	4,72	[1,36 ; 16,38]	0,015
<b>the use of antiepileptic drugs preoperatively</b>	6,21	[1,64 ; 23,48]	0,07
<b>prolonged duration of surgery (&gt;195 minutes)</b>	3,52	[1,42 ; 13,41]	0,045
<b>Surgicel</b>	10,5	[1,78 ; 61,79]	0,009

Patients with postoperative hypofibrinogenemia had worse GOS-E scores at discharge and after three months. On the other hand, fibrinogen deficiency after surgical removal of intracranial tumor was not significantly associated with increased postoperative mortality.

### Conclusion :

We found a high prevalence of hypofibrinogenemia after brain tumor resection (40%). This anomaly increases the risk of intracranial hematoma. It therefore deserves the attention of the practitioner in order to correct it rapidly and avoid its potentially serious complications.