



## Risk factors and complications of intracranial pressure monitoring with a fiberoptic device (2009)

**Authors:** Bekar, A, *et al*, 2009.

**Journal:** *Journal of Clinical NeuroScience*, 16, 237-241.

Objectives/Rationale	Methods/Patients
<p><b>Hypothesis:</b> ICP monitoring using the Camino® system is regarded as highly accurate with a low incidence of complications</p> <p><b>Objective:</b> To evaluate the complications and risk factors for intraparenchymal ICP monitoring with a large number of patients</p>	<ul style="list-style-type: none"> <li>• Prospective study of 631 patients admitted for different intracranial pathologies who underwent ICP monitoring with a Camino® ICP Monitor</li> <li>• Groups were divided into those with an EVD and those without: 328 (52.0%) had only Camino, 303 (48.0%) had Camino and EVD</li> <li>• Complications in continuous monitoring were noted</li> </ul>

### Results

1. Monitor-related bleeding complications: 7 cases (1.1%)
2. Technical complications (disconnection, breakage, dislocation, probe defects): 20 cases (3.17%)
3. Monitor-related infections: Camino only group (6, 2.1%), Camino + EVD group (24, 7.9%)
4. Risk factors for infection: Rhinorrhea, CSF leakage and collection in wound area, operation for intracerebral hematoma, having more than one ventricular drainage set

### Conclusions

1. ICP monitoring can be applied as a safe diagnostic and treatment approach for the management of patients with or at risk of high ICP
2. The complication risks are minimal, and infection can be decreased with precise cleaning of the surgical area

### Key Messages

1. There is no increased risk of infection relative to the duration of time a patient has continuous parenchymal monitoring in place.
2. Education of nurses and medical staff about fiberoptic ICP monitors can minimize the risk of disconnection of the transducer, which normally occurs during patient transport and care

## Intracranial Pressure Monitoring

### Value Equation for the Camino® System

Rapid & Accurate  
Measurement

+

Early  
Detection

=

Early  
Intervention

+

Predictable  
Outcomes

### How this article supports the Camino value equation:

Continuous ICP  
monitoring

Aggressive  
Treatment

Decreased  
Morbidity

### FAQs

1. The authors describe a preparation procedure in this article; is there published information on proper preparation of the insertion site prior to implantation of invasive intracranial devices?

*Professional organizations such as American Association of Neuroscience Nurses (AANN) have published guidelines that discuss proper methods for preparation. (AANN, 2011) The preparation for placement of the Camino ICP catheters should be the same as any other invasive intracranial device.*

2. How long can Camino ICP catheters remain in the patient?

*As per Integra IFU, we recommend that catheters be used for up to 5 days.*

3. Is there an ideal area of the hospital (Operating Room, ICU, etc.) that catheter insertion and placement should be performed in?

*This study showed similar infection rates for the catheters placed in the operating room (374 patients – 5.34%) as compared to catheters placed in the ICU (257 patients – 4.38%)*

Reference: AANN (2011). Care of the patient undergoing intracranial pressure monitoring/external ventricular drainage or lumbar drainage. Glenview, IL: American Association of Neuroscience Nurses

The Integra® Camino® ICP Monitor is indicated for use by qualified neurosurgeons or neurointensivists for measurement of intracranial pressure and temperature.