

Comparative safety of PICC-ports and chest ports in oncology

A monocentric retrospective cohort study

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Background: PICC-ports have emerged as a modern alternative to chest ports for long-term venous access in oncology. Their use is facilitated by ultrasound-guided techniques and improved patient comfort, but comparative safety data remain limited. This study evaluates the safety of PICC-ports versus chest ports using standardized insertion protocols.

Methods:

- **Design:** Retrospective cohort (Aug 2022 – Nov 2024)
- **Population:** 329 adults (172 chest ports, 157 PICC-ports)
- **Protocols:** SIP-Port (PICC-ports)¹, ISALT3 (chest ports)²
- **Follow-up:** 180 days
- **Outcomes:**
 - *Primary:* Severe Adverse Events (SAE) requiring removal, hospitalization, or causing death
 - *Secondary:* Transient Adverse Events (TAE), insertion failures
 - *Incidence densities* expressed per 1,000 catheter-days (CD)

Results:

Incidence of Severe and Transient Adverse Events

- **SAE incidence:**
 - Chest ports: **0.47 / 1,000 CD**
 - PICC-ports: **0.55 / 1,000 CD** (not significant)
- **TAE incidence:**
 - Chest ports: **1.05 / 1,000 CD**
 - PICC-ports: **0.79 / 1,000 CD** (not significant)

Specific Complication Incidence Densities

Complication	Chest Ports	PICC-Ports
Infection	0.29 / 1,000 CD	0.27 / 1,000 CD
Catheter-Related Thrombosis (CRT)	0.11 / 1,000 CD	0.19 / 1,000 CD

Other Key Findings

- **Significantly more occlusions** with chest ports (p=0.0062)
- **More insertion failures** with PICC-ports
- **Catheter removals:**
 - Chest ports: 2.3% (0.14 / 1,000 CD)
 - PICC-ports: 7.6% (0.47 / 1,000 CD)
- **Subgroups:**
 - *Breast cancer:* No SAE with PICC-ports
 - *Head & neck / lung cancers:* Trend toward more SAE with PICC-ports (not significant)

Conclusion: PICC-ports may represent a **safe and effective alternative** to conventional chest ports when inserted by trained vascular access specialists and managed according to standardized protocols.

¹Brescia F, et al. A GAVeCeLT bundle for PICC-port insertion: The SIP-Port protocol. J Vasc Access. 2024 Nov;25(6)

²Pittiruti M, Scoppettuolo G. Raccomandazioni GAVeCeLT 2024