Neuraxial Anesthesia in the Parturient Receiving Intrathecal Chemotherapy

Acute Lymphoblastic Leukemia (ALL) in Pregnancy

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- Neuraxial anesthesia with ALL treatment must account for maternal-fetal risk
- Intrathecal chemotherapy poses unique anesthetic planning challenges
- No established guidelines for neuraxial placement post-IT chemo

Malignancy of lymphoid progenitor cells[1]

- B (75%-80%)
- T (20%-25%)

1 in 75,000[2]

pregnancies affected by ALL

~15%[3]

of pregnancy-associated leukemias

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02 / CASE PRESENTATION

Acute Lymphoblastic Leukemia in Pregnancy

CLINICAL TIMELINE

29 Weeks

Presented with pre-B cell ALL diagnosis after increased cell counts found on routine blood work.

29–33 Wks

Systemic chemotherapy + lumbar puncture with intrathecal cytarabine and hydrocortisone

Post-LP

Post-dural puncture headache developed after LP, discussed epidural blood patch versus conservative treatment with APS. Managed conservatively with acetaminophen and caffeine

34 Weeks

Induction of labor at 34 +3 weeks, successful epidural placement, and spontaneous vaginal delivery

Patient was discharged back to oncology service on post-partum day two.

KEY ANESTHETIC CONSIDERATIONS

- Epidural blood patch safety in hematologic malignancy
- Neuraxial efficacy after recent epidural blood patch
- Safe interval from last intrathecal chemotherapy to performing neuraxial block

Clinical Pearls for Peripartum Neuraxial Management

01

EBP Safety in Malignancy

Theoretical concern exists for CNS seeding via EBP; however, no clinical evidence supports this risk[4]. Conservative management can be considered as a first-line approach before EBP in patients with active hematologic malignancy.

02

Neuraxial Efficacy After EBP

In our review, there was no evidence or studies to support optimal timing of epidural placement after an EBP. Anesthesiologists should weigh the risks and benefits of EBP placement when it is known a labor epidural will be requested in short interval.

03

IT Chemo → Neuraxial Timing

No evidence-based guidelines define a safe interval between IT chemotherapy and neuraxial anesthesia. A pragmatic approach: wait five half-lives to ensure drug elimination prior to neuraxial block.

CSF HALF-LIVES OF IT AGENTS

Drug	CSF Half-Life	Kinetics
Cytarabine (Ara-C)	**2–6 hrs**	First
Liposomal Cytarabine (DepoCyt)	**100–263 hrs**	Zero → First
Methotrexate	**4.5–8 hrs**	First
Hydrocortisone	**2.5–4 hrs**	First
Dexamethasone	**5.5 hrs**	First

Multidisciplinary approach is essential — oncology, MFM, and anesthesia — to individualize peripartum analgesia in patients receiving IT chemotherapy.