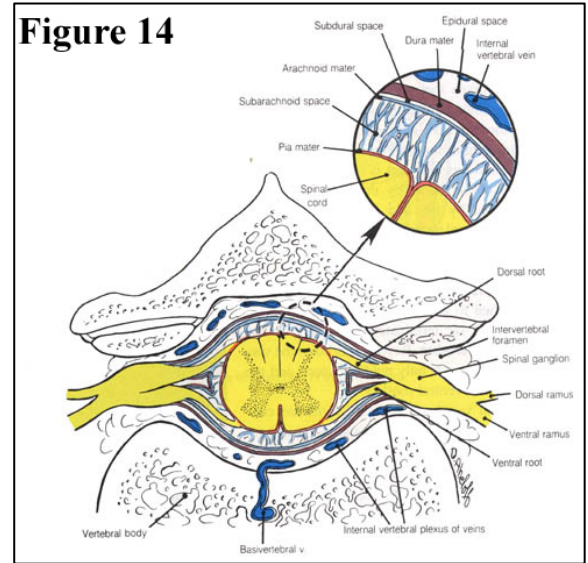


# Spinal Anesthesia: Spread Determinants

## Anesthetic Pearls: Anesthetic Determinants for Spread of Spinal Anesthetics

**Baricity** is defined as the ratio of the density of a local anesthetic at a specified temperature to the density of the CSF at the same temperature (swirl of CSF and LA solutions on spinal aspiration).

- A. **Isobaric** solutions have a baricity of 1, which means the density of the local anesthetic is equal to the CSF and it tends to remain at the site of injection (1% Lidocaine).
- B. **Hypobaric** solutions have a baricity of less than 1, which means the density of the local anesthetic is less than the CSF so it tends to float to the highest point (0.25% Bupivacaine + sterile water). The addition of sterile water to the solution will cause it to become hypobaric.
- C. **Hyperbaric** solutions have a baricity of greater than 1, which means the density of the local anesthetic is greater than the CSF so it sinks to the lowest point (0.75% Bupivacaine + dextrose solution). The addition of 5-8% dextrose to the solution will cause it to become hyperbaric.



## Factors that Affect the Spread of Spinal Anesthetics

### Major Factors

1. Dose
2. Baricity
3. Patient position

### Minor Factors

1. Age
2. Shape of spinal canal
3. Technique of injection
4. Characteristics of CSF
5. Temperature of local

### NO Effect

1. Height
2. Weight
3. Gender
4. Vasoconstrictors
5. Barbotage

