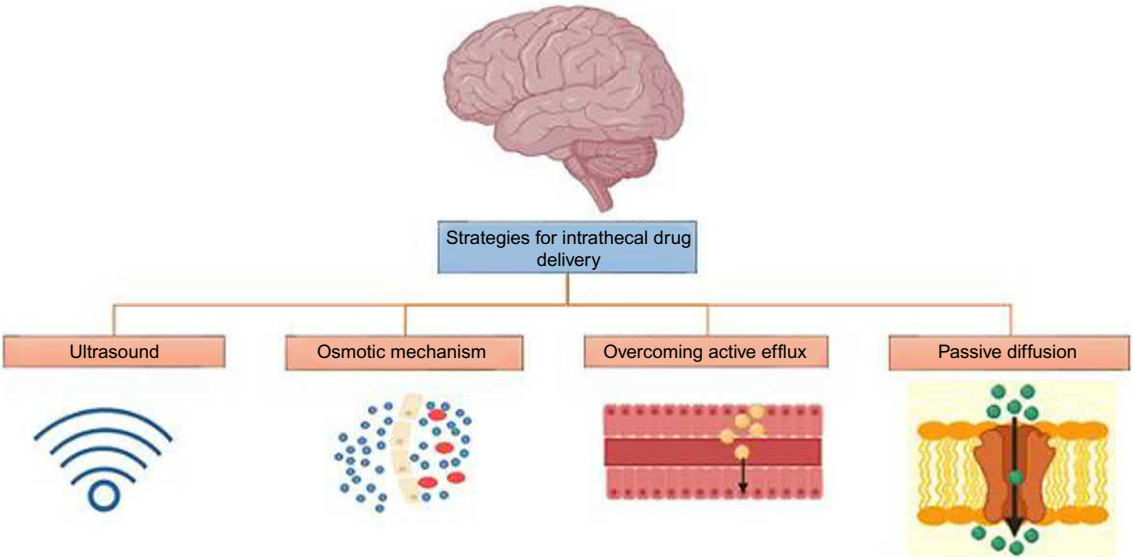

FIG. 1 Strategies for intrathecal drug delivery system.

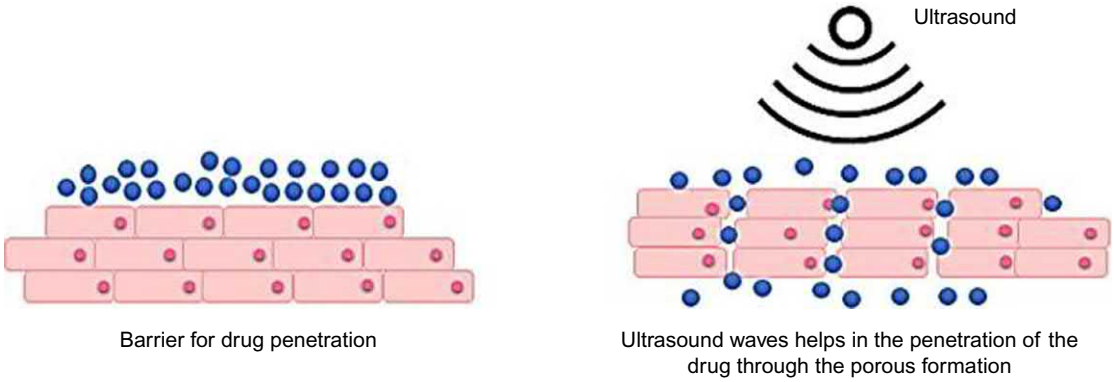

FIG. 2 Blood-brain barrier (BBB) disruption by ultrasound.

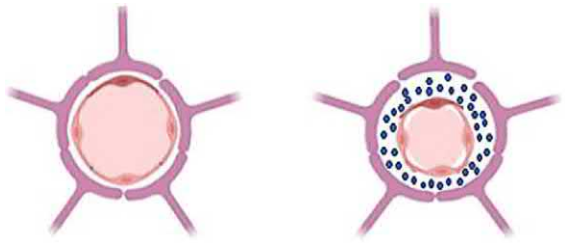

FIG. 3 Blood-brain barrier (BBB) disruption by osmotic mechanism.

The CNS barrier can be partially overcome in the case of efflux transporter substrates by modulating the transporter proteins. ATP-binding cassette transporters are multispecific efflux transporters that bind to several of the efflux in the body. A slight modification in structure or the surface charge of this efflux helps in the penetration of the drug acting as xenobiotics for the BBB [10].

2.4. Passive Diffusion of Drugs

Dispersion of drug across the membrane without energy source is known as passive diffusion. Most of the small molecular diffuse passively across the BBB and their flow is accelerated by partially association-dissociation between anions and cations for the formation of neutral