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Nano-anesthesia: A novel approach to local anesthesia

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A technique using anesthesia containing nanoparticles, drawn to the targeted area of body by magnets provide a useful alternative to nerve block for local anesthesia. This technique in patients suggests an experimental study. The engineered nanoparticle complexes in which contains small amounts of Ropivacaine and the iron oxide mineral magnetite. Magnet derived nanoparticles-ropivacaine complexes are injected into the veins and then magnets placed around ankle for 15, 30 and 60min. The goal was to use magnets to draw nanoparticles to ankle and particles release the anesthetic, numbing the nerves around the ankle. So, it is an alternative to local anesthetic block like that used for foot and ankle surgeries and deliver high concentrations of local anesthetic directly to desired area without increasing toxic effects. By this, it allows more potent doses of local anesthesia to be delivered safely during local anesthesia in humans. By the disposition of complexes at ankle with each cardiac cycle, are sequestered by liver, spleen, other organs and by magnet. With this technique, a safe dose of ropivacaine when combined with MNPs is higher when injected by IV.

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