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(57) Abstract :

The invention of microsystems, micro-electromechanical systems, and related technologies is a recent advancement in technical progress on a global scale. The pathophysiology of newborns and their intravenous infusion systems provide a number of difficulties for intravenous medication administration. These difficulties result from low IV flow rates, tiny medication volumes, and large amounts of dead space, and restrictions on flush volumes in newborns. While infant pharmacokinetics are generally understood, there is sometimes a lack of awareness of the significant delay and variability in the rate of medication administration from the intravenous line. This can make it challenging to precisely predict how medications behave pharmacokinetically and pharmacodynamically in the smallest people. To increase our comprehension of the physical factors' effects on the delivery of medications through neonatal lines, more research into these factors' effects is required. For the long-term delivery of drug, we have created biodegradable MEMS devices. A drug reservoir and microchannel that connect the reservoir to the open end of the microchannel make up the MEMS devices. Depending on the geometric parameters chosen, the MEMS device can either work by diffusion release or osmotic pressure release. The main objective of the proposed system is design of Microchannel with reservoir with the release rate of drug which is used in Neonatal Intravenous care unit.

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