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MR-Compatible Wireless Fluid Injection System

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The invention is an MR compatible, low volume, low flow, wireless fluid injection system. The main components, as depicted in the drawing, are the motor syringe, the battery/controller and the program console. The motor syringe is comprised of an MR motor attached to the plunger of a disposable syringe. The motor may be directly attached to the plunger of a syringe or attached to a fixture that the syringe is placed into. The battery/controller is used as the power source for the injector and includes the electronics for the device. It would be attached to the MR table a safe distance from the magnet. The injector travels with the patient into the bore of the magnet, as it is completely MR compatible with only the wire tethered to the controller. The program console is located in the control room and is the program module of the system. The console sends signals to the controller, which starts and stops the injector. Flow rates and volumes are programmed on the console.

SPECIFICATION

The novel feature is the ability of this fluid injection system to travel with the patient into the bore of the magnet and be controlled in the control room. It is an improvement of all injection devices that cannot travel into or be placed within the bore of an MR magnet.

The invention is useful for any injection application that requires low flow, low volume injections of high cost drugs and fluids in conjunction with an MRI scan.

