

144. DRUG DOSAGE MONITORING IN IMPLANTED DRUG DELIVERY DEVICES USING HELIX ANTENNA

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In implanted drug delivery systems a controlled rate of drug administration is essential. Over dosage of medication will cause side effects and reduction in the dosage of medication will cause reduced therapeutic efficacy. Hence a mechanism for real time monitoring of the dosage level is necessary. A real time dosage sensor is to be designed by integrating a helix antenna inside the drug reservoir. Based on electromagnetic theory, with the change in drug level inside drug cavity the resonant frequency of the antenna changes hence drug level can be determined. In this work, by the software simulation of the equivalent reservoir environment the concept is proved i.e. a change in resonant frequency from 2.52GHz to 2.4 GHz with a variation of dielectric constant from 1 to 80 is noticed . Hence the sensitivity of the system can be found from this. In addition the problems associated with accurate drug dosage determination by this method is analyzed and a suitable method for accurate drug level monitoring proposed.

Key words—frequency, drug monitoring, dielectric constant

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