REVIEW ARTICLE

3D-PRINTING ASSISTED COLORECTAL CANCER MANAGEMENT: CURRENT PHARMACEUTICAL PERSPECTIVE

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ABSTRACT

Globally, colorectal cancer accounts for 10% of incidences, with projected fatalities rising upto 60 % to 71.5 % by 2035. These are attributed to the shortcomings of conventional therapeutic strategies with their strict restriction on the dosage form variability, release patterns and off-target effects due to nonspecific biodistribution and high dosage regimens. As a result, they fail to effectively deliver drugs to the colon due to variable pH microenvironment, gastrointestinal time and disease conditions of the individual. Personalized medicine offers a promising solution, but it is constrained by the rigidity of traditional dosage forms. 3D printing is an emerging technology to develop such personalized formulations to cater to the needs and the physiological condition of every patient; thereby potentially revolutionizing the therapeutic approach for cancer management. It allows for the creation of complex geometries and polypills tailored to individual patient needs, potentially overcoming the "one-size-fits-all" limitations of conventional drug delivery systems.