Hybrid AI–Ayurvedic Therapies for Cancer and Chronic Disease Management

Vrundan Jayswal, Deelip B. Radkar

CHILDREN'S RESEARCH UNIVERSITY, BHARATI VIDYAPEETH COLLEGE OF ENGINEERING

Hybrid AI–Ayurvedic Therapies for Cancer and Chronic Disease Management

[1]Vrundan Jayswal, Assistant Professor, Department of Prenatal Care, Children's Research University, Gandhinagar, India. dr.vrundanjayswal@gmail.com

[2]Deelip B. Radkar, Assistant Professor, Department of Mechanical Engineering, Bharati Vidyapeeth College of Engineering, Navi Mumbai Maharashtra India. dilip.radkar@bvcoenm.edu.in

Abstract

The convergence of Artificial Intelligence (AI) and Ayurvedic therapies offers a transformative approach to healthcare, particularly in the management of cancer and chronic diseases. This chapter explores the integration of AI with Ayurveda, emphasizing its potential to personalize treatment plans, optimize therapeutic outcomes, and enhance patient well-being. AI-driven systems, utilizing vast datasets including genetic profiles, lifestyle factors, and real-time health monitoring, enable the development of highly tailored treatment protocols that align with Ayurvedic principles of individualized care. The chapter delves into the role of AI in enhancing Ayurvedic diagnostics, refining herbal formulations, and facilitating continuous monitoring, while addressing the holistic needs of patients. It also highlights the application of AI in cancer management, where it aids in early detection, treatment personalization, and real-time adaptation of therapies, synergistically combined with Ayurvedic interventions. By bridging modern technology with traditional healing practices, this hybrid model offers a comprehensive approach to disease prevention, treatment, and recovery. The chapter discusses the ethical, cultural, and regulatory considerations of integrating AI with Ayurveda and outlines future research directions for this interdisciplinary approach to healthcare.

Keywords: Artificial Intelligence, Ayurvedic therapies, cancer management, chronic disease care, personalized medicine, integrative treatment models.

Introduction

The convergence of Artificial Intelligence (AI) and Ayurveda marks a pioneering shift in the landscape of healthcare, particularly in the management of chronic diseases and cancer [1]. Ayurveda, an ancient system of medicine that originated in India over 5,000 years ago, focuses on the holistic balance of the body, mind, and spirit [2]. It emphasizes the unique constitution of each individual (Prakriti) and aims to restore harmony through personalized treatment plans that incorporate herbal remedies, diet, lifestyle changes, and detoxification processes [3]. While Ayurveda has long been effective in treating a variety of conditions, including chronic diseases, its integration into modern healthcare systems remains a challenge due to the lack of standardized protocols and scientific validation [4]. Artificial Intelligence offers a powerful opportunity to bridge this gap by enhancing the precision, efficiency, and personalization of Ayurvedic treatment protocols. The combination of AI with Ayurveda can potentially revolutionize the way chronic diseases and cancer are managed, enabling a more individualized approach to patient care [5].

Artificial Intelligence, with its advanced algorithms and data analytics capabilities, allows for the integration of vast amounts of patient data, ranging from genetic information to lifestyle choices and real-time health monitoring [6]. AI's potential to analyze large datasets offers unprecedented insights into the underlying causes of chronic diseases and cancer, providing the basis for personalized treatment plans that are both data-driven and tailored to the unique needs of each patient [7]. Machine learning algorithms can analyze patient health records, detect patterns, and make predictive assessments about the progression of disease or treatment outcomes [8]. This allows healthcare providers to make more informed decisions and adapt treatment plans in real-time [9]. By leveraging AI's power to monitor and analyze ongoing health data, Ayurveda's traditionally personalized approach can be enhanced, providing more precise and effective interventions in the management of chronic diseases and cancer [10].

The integration of AI into Ayurvedic practices extends beyond treatment personalization; it offers the potential for refining diagnostic methods as well [11]. Traditional Ayurvedic diagnostic techniques, such as pulse diagnosis and tongue examination, are based on the practitioner's experience and intuition [12]. While these methods are valuable, they are inherently subjective and vary between practitioners [13]. AI can standardize these diagnostic processes by analyzing large volumes of patient data, including symptoms, medical history, and diagnostic tests, and identifying patterns that may not be immediately apparent to human practitioners [14]. By offering a data-driven approach to diagnosis, AI can help validate Ayurvedic diagnostics and enhance the accuracy of treatment recommendations. For instance, an AI system can identify correlations between a patient's doshic imbalances and specific health conditions, allowing Ayurvedic practitioners to refine their approach and deliver more targeted therapies [15].