

Transforming Orthodontic Diagnosis in the Era of Artificial Intelligence

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Purpose: This presentation aims to examine the current adoption of digital technologies and artificial intelligence in clinical orthodontic practice and to explore the practical role of AI in orthodontic diagnosis and treatment planning.

Methods: The digital workflow used in Korean orthodontic practice was categorized into three stages: diagnosis and analysis, treatment planning and setup, and post-treatment evaluation and archiving. The level of AI involvement, the roles of related software and industry solutions, and the characteristics of clinician-driven versus platform-driven workflows were analyzed.

Results: Digitalization in Korean orthodontics has evolved from the computerization of radiographic imaging and automated cephalometric analysis to cloud-based diagnostic platforms and AI-assisted setup systems. AI is actively applied in automatic landmark detection, treatment outcome prediction, tooth movement optimization, and pre/post-treatment superimposition. In the setup stage, clinician-driven approaches, in which orthodontists directly design tooth movement, coexist with platform-driven approaches, in which companies provide setups for clinician approval. The choice between these approaches varies depending on clinical preference and economic structure. Furthermore, as case review outside clinic hours has become common, there is increasing demand for lightweight, cloud-accessible solutions.

Conclusion: Digitalization in Korean orthodontics is evolving beyond simple technological adoption toward a restructuring of clinical decision-making and workflow. AI is not replacing clinicians but functioning as a supportive tool that reduces repetitive tasks and enhances the efficiency of expert judgment. In the future, AI is expected to play an increasingly significant role in orthodontic diagnosis, with lightweight systems, cloud-based environments, and AI-assisted decision-making becoming core infrastructure in digital orthodontics.

Profile

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