

## Molecular Diagnosis of Influenza Strains Was Carried Out on Patients of the Social Security Clinic in Karaj Using the RT-PCR Technique

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**Abstract :** Seasonal flu is a highly contagious infection caused by influenza viruses. These viruses undergo genetic changes that result in new epidemics across the globe. Medical attention is crucial in severe cases, particularly for the elderly, frail, and those with chronic illnesses, as their immune systems are often weaker. The purpose of this study was to detect new subtypes of the influenza A virus rapidly using a specific RT-PCR method based on the HA gene (hemagglutinin). In the winter and spring of 2022\_2023, 120 embryonated egg samples were cultured, suspected of seasonal influenza. RNA synthesis, followed by cDNA synthesis, was performed. Finally, the PCR technique was applied using a pair of specific primers designed based on the HA gene. The PCR product was identified after purification, and the nucleotide sequence of purified PCR products was compared with the sequences in the gene bank. The results showed a high similarity between the sequence of the positive samples isolated from the patients and the sequence of the new strains isolated in recent years. This RT-PCR technique is entirely specific in this study, enabling the detection and multiplication of influenza and its subspecies from clinical samples. The RT-PCR technique based on the HA gene, along with sequencing, is a fast, specific, and sensitive diagnostic method for those infected with influenza viruses and its new subtypes. Rapid molecular diagnosis of influenza is essential for suspected people to control and prevent the spread of the disease to others. It also prevents the occurrence of secondary (sometimes fatal) pneumonia that results from influenza and pathogenic bacteria. The critical role of rapid diagnosis of new strains of influenza is to prepare a drug vaccine against the latest viruses that did not exist in the community last year and are entirely new viruses.

**Keywords :** influenza, molecular diagnosis, patients, RT-PCR technique

**Conference Title :** ICVID 2024 : International Conference on Virology and Infectious Diseases

**Conference Location :** Montreal, Canada

**Conference Dates :** May 23-24, 2024