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Off Label Use of Oseltamivir in Managing Mumps a Case Report

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Abstract: ***This case report explores off label application of oseltamivir in managing mumps. A 30 - year - old female presented with fever and swelling of parotid regions. Based on clinical scenario, mumps has been diagnosed. Patient was in agony due to severe pain in the parotid regions. So patient was put on oseltamivir 75 mg twice daily for 5 days along with paracetamol 650 mg twice daily. After 3 days pain almost subsided along with fever. On day 6 of the disease swelling almost resolved and patient's overall well - being was better. Patient resumed her normal work after 7 days. Also, patient's close contact was put on oseltamivir 75 mg once daily for 10 days as post exposure prophylaxis. Patient did not report any severe side effects, and her overall health status improved within a week after treatment. This case study suggests that oseltamivir may be a promising off label treatment option for mumps.***

Keywords: Oseltamivir, Mumps, Case report

1. Introduction

Mumps, a highly contagious viral disease primarily affecting the parotid salivary glands. [1] It is traditionally managed with supportive care, given its self - limiting nature. [2] This case report explores the unconventional use of oseltamivir, an antiviral typically used in the treatment of influenza, in the management of mumps which reduced severity and duration of disease.

2. Case Presentation

A 30 - year - old female came to primary care physician with presentation of bilateral parotid gland swelling, fever, and myalgia. He was diagnosed with mumps based on clinical features. As per the protocol mumps treated with supportive care as there is no specific treatment present. Despite the usual course of supportive treatment, the patient's symptoms escalated, necessitating an alternative therapeutic approach. To reduce patient's agony oseltamivir 75 mg twice daily for 5 days prescribed along with paracetamol 650 mg for fever and myalgia[3] As a post exposure prophylaxis patient's close contact advised to take oseltamivir 75 mg once daily for 10 days.

Management and Outcome

The patient was administered oseltamivir 75 mg twice daily, an off - label use considering its primary deployment in influenza treatment. Within 72 hours of oseltamivir initiation, a marked reduction in parotid swelling and alleviation of systemic symptoms were observed. The patient completed a 5 - day course of the drug, post which she was symptom - free, demonstrating the potential efficacy of oseltamivir in treating mumps. In figure 1 & 2, parotid area swelling of the patient has been compared on day 1 with day 6 respectively. Mumps usually takes 1 - 2 weeks to recover, but with oseltamivir treatment it has been reduced to less than 7 days. Also, close contact didn't develop any symptoms of mumps during or after post exposure prophylaxis.

3. Discussion

Oseltamivir, a potent neuraminidase inhibitor, prevents the release of new viral particles from infected cells, effectively containing the spread of the virus within the host. Its activity reduces viral shedding and infectivity.4 Oseltamivir primarily used for influenza A and B infection, where it's started within 48 hours of disease onset. Though in few cases it showed promising result in preventing severe pneumonia or other complications when it was started beyond 48 hours.

Mumps virus belongs to paramyxoviridae family. Its genome made of negative sense single stranded RNA which is encased by a capsid. The nucleocapsid surrounded by viral envelope. External surface contains glycoproteins possessing hemagglutinin, neuraminidase and cell fusion activity. Genome encodes for eight proteins – neuraminidase protein (HN), phosphoprotein (P), matrix protein (M), hydrophobic protein (SH) and L proteins. HN proteins stand for important determinants of immunity.5

Oseltamivir's exact function in mumps treatment is not clear. Mumps and influenza virus both shared neuraminidase component on cell surface which is the main target site for oseltamivir. So, it is hypothesized that oseltamivir binds to active site of HN protein present on mumps virus cell surface. Just like influenza, it is expected to prevent release of virions from infected cells into host body. Thus, preventing disease progression and severity.

This case report suggests that oseltamivir could play a role in the treatment of mumps, especially in severe or persistent cases where common supportive treatments fail to manage the condition effectively. As per this case report oseltamivir helps to reduce disease progression and severity in mumps. Also fasten the recovery period for mumps affected patient. In conventional treatment it takes near about 14 days to recover from mumps but here it took less than 7 days after treatment with oseltamivir. However, it's important to note that this is a single case study and more extensive clinical trials are needed to validate the safety and efficacy of oseltamivir in the context of mumps treatment.

4. Conclusion

The potential use of oseltamivir in the management of mumps presents an interesting avenue for further research. Though promising, the findings from this case report should be considered preliminary until confirmed by larger, controlled studies. The role of oseltamivir in mumps treatment, therefore, remains an open question, encouraging further exploration and investigation.

Figures:

Figure 1: Showing parotid area swelling of the patient on day 1 of the treatment

Figure 2: Showing parotid area swelling of the patient on day 6 of the treatment

References

[1] Davison P, Morris J. Mumps.2023 Aug 8. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan–. PMID: 30521206.

[2] Davison P, Morris J. Mumps. [Updated 2023 Aug 8]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan - . Available from: https: //www.ncbi. nlm. nih. gov/books/NBK534785/

[3] Nicholson KG, Aoki FY, Osterhaus AD, Trottier S, Carewicz O, Mercier CH, Rode A, Kinnersley N, Ward P. Efficacy and safety of oseltamivir in treatment of acute influenza: a randomised controlled trial. Neuraminidase Inhibitor Flu Treatment Investigator Group. Lancet.2000 May 27; 355 (9218): 1845 - 50. doi: 10.1016/s0140 - 6736 (00) 02288 - 1. Erratum in: Lancet 2000 Nov 25; 356 (9244): 1856. PMID: 10866439.

[4] He G, Massarella J, Ward P. Clinical pharmacokinetics of the prodrug oseltamivir and its active metabolite Ro 64 - 0802. Clin Pharmacokinet.1999 Dec; 37 (6): 471 - 84. doi: 10.2165/00003088 - 199937060 - 00003. PMID: 10628898.

[5] Rubin S, Eckhaus M, Rennick LJ, Bamford CG, Duprex WP. Molecular biology, pathogenesis and pathology of mumps virus. J Pathol.2015 Jan; 235 (2): 242 - 52. doi: 10.1002/path.4445. PMID: 25229387; PMCID: PMC4268314.