

## Oseltamivir for Hand, Foot and Mouth Disease

A 2½-year-old boy presented to us with high grade fever and cough for a day. There was no rash or any other obvious focus of infection. A diagnosis of viral fever was considered. As there was recent contact with a H1N1 influenza patient in the family, a possibility of H1N1 infection was considered in this young child and oseltamivir was administered at a dose of 30 mg twice daily for 5 days. Though there was infrequent cough, the fever abruptly abated 48 hours after initiation of oseltamivir. On the fourth day of illness, skin lesions typical of Hand, foot and mouth disease (HFMD) were noted over limbs, palms and soles. However, the lesions healed quickly and desquamated in 2 days. This child probably acquired HFMD from other children in his playschool. Incidentally, the oseltamivir he received for possible H1N1 infection resulted in earlier cessation of fever and resolution of skin lesions. Though HFMD is usually self-limiting, fever and skin lesions for one or two weeks may be distressing for both children and their parents. If a safe antiviral drug can shorten the duration and intensity of the illness, it may become a treatment option. However, this clinical observation is very

preliminary and proper research evidence is needed to document any such benefit.

Oseltamivir phosphate is an oral prodrug which undergoes hydrolysis by hepatic esterases to form active oseltamivir carboxylate which acts by selective inhibition of influenza A and B viral neuraminidase. A lipophilic side chain of the active drug binds to the virus enzyme, blocking its ability to cleave sialic acid residues on the surface of the infected cell resulting in an inability to release progeny virions [1]. Usage of sialic acid is a common feature of at least three different viruses with pandemic potential: Coxsackie Virus A24, Enterovirus 70, and influenza A virus [2]. This sialic acid link could be a common pathway by which oseltamivir helps in HFMD.

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## Immunization Issues in Children Undergoing Liver Transplantation

Liver transplantation is established therapy for children with decompensated chronic liver disease (CLD), and in subsets of patients with acute liver failure and metabolic liver disease. [1]. Children require lifelong immunosuppression which can predispose them to infections. The rates of immunization in pre-transplant candidates are low throughout the world. [2]. This problem gets compounded in a large country like India where the national average of children immunized under the Universal immunization program is 46% [3].

About two-thirds of all candidates referred to us for liver transplantation are partially immunized. As children with CLD cannot be transplanted for 3-4 weeks after a live vaccine is administered, it is important that early vaccination against varicella, measles, mumps and rubella, is ensured for all children who are listed for liver

transplantation. Vaccination against pneumococcal disease, influenza and hepatitis A should similarly be brought forward to complete the vaccination schedule [4].

The disease burden in the post-transplant period can be reduced significantly by expediting the vaccination schedule in the pre-transplant period, and by offering immunization to household contacts. While every effort should be made to vaccinate prior to transplantation, inactivated vaccines are safe after transplantation. Live attenuated vaccines are generally contraindicated after transplantation. It is preferred that close contacts be vaccinated against measles, mumps, rubella and varicella, 4 weeks before the transplant so as to prevent the transplanted patient from having contact with wild-type viruses.

The ability to mount an immune response is impacted by the type and dose of immunosuppression [5] The effect of immunosuppression on memory T cells is incompletely understood and the life span of memory T

cells has not been determined in patients who have undergone liver transplantation. However, using drugs with different modes of immunosuppressive action can have an additive effect in dampening the response to vaccination. There is no evidence to link transplant rejection to immunization.

To summarize, vaccination status should be reviewed at the time of the first visit to the treating physician and a plan should be developed. The status should be reviewed once the patient is listed for transplantation. For patients who are incompletely vaccinated prior to transplant, inactivated vaccines can be given safely once immunosuppression is established. Data on safety and immunogenicity of live vaccines in such patients is awaited.

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## Control of Tuberculosis in India: President's Vision and Bold Initiative

The President of Indian Academy of Pediatrics (IAP) has highlighted the importance of addressing pediatric tuberculosis (TB) – for cure and prevention [1]. The announcements that IAP will train pediatricians on 'TB control' and the idea of creating 'State and District level Task Forces for TB Control', if implemented, will give IAP a new role in health management.

Our children deserve to live without the risk of inhaling *Mycobacterium tuberculosis* (MTb), which of course is their fundamental human right. For that, we must transform India from a high prevalence to a low prevalence nation. The only way to achieve this goal is by effective TB control.

The term 'control' has specific meaning in epidemiology [2]. TB control has been defined as yearly 5 percent reduction of annual rate of MTb infection (ARTI) [2]. In 20 years, India can become a low prevalence nation, like Western countries [2]. This can be achieved only through community level action, particularly for socio-behavioral change, supported by intensive bio-medical interventions. Only the Government has reach and power to establish such modalities. We in healthcare profession cannot control TB through treating and curing individual children with TB, even if we reach 100% [2].

The Government has currently no policy to control TB [3]. IAP's first task is to force our Government to accept TB control as national policy [1,3]. IAP has the opportunity and President has the vision, for such advocacy [1]. IAP ought to establish a National Task Force on TB Control to assist the Government to re-define the goal of the Revised National TB Control Programme from the current 50 percent mortality reduction to annual 5 percent reduction of ARTI [1-3].

The control of TB offers India a unique opportunity to construct a model of primary healthcare linked to public health [4]. TB control is not only a humanitarian service but also a developmental endeavor – India can become richer by annual saving of 23.7 billion US dollars if TB is controlled [3]. IAP can thus contribute to our country's socio-economic development.

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