these 2 investigation were given 30 min before or immediately after DTP vaccination, and such administration protocol is not adequate for DTP-OPV vaccinations in Taiwan. In the study by Uhari et al.,[16] acetaminophen in a single dose schedule (l0 mg/kg per dose) was ineffective in decreasing post-vaccination fever and other symptoms. The efficacy of acetaminophen depended on the use of an adequate dosage, which should be 10 to 15 mg/kg per dose at 4-hour intervals. [17-18] Larger doses offered no advantages. In the present study, we used 15 mg/kg per does acetaminophen for 2 doses 4 hours apart.

Since acetaminophen administered in studies by Ipp and Gold[1] and Lewis and Cherry,[15] appeared to be somewhat beneficial, it is possible that an increased frequency of administration would result in the expected effect. In children who reacted with fever, the fever began within 24 hours of the vaccination in more than 94% of cases; the results are similar to those in the study by Verschoor et al..[13] It is quite possible that multiple doses of acetaminophen might have been effective in the studies of Ipp and Gold[1] and Lewis and Cherry,[15] since antipyretic drugs are effective in reducing fever already present.[19] However, increased frequency of the administration of acetaminophen may be difficult in practice and should be used with much caution. Care needs to be taken with extended dose schedules of acetaminophen because DTP immunization is carried out at an age when septicemic bacterial diseases are not rare. Manifestation of serious illness could be masked and specific treatment delayed. In addition, it is possible that the anti - inflammatory effect of extended acetaminophen administration could be detrimental to the development of specific protective antibodies.[20-21] Another reason, it is not practical for parents to administer serial prophylactic drugs as 3-5 doses after routine vaccination, whereas, we administered 2 doses of prophylactic acetaminophen after DTP vaccination.

Antipyretic drugs have different fever-reducing mechanisms. Acetaminophen acts partly via the prostaglandin system and partly directly on the central nervous system.[22] In the murine model, fever activity appeared to be correlated with histamine-sensitizing factor (HSF) activity[23], however, pyrogenicity of the pertussis vaccine in humans is unclear. It is possible that antipyretics with mechanisms of action different from that of acetaminophen may be prophylactically effective. [24-25] However, acetaminophen is an effective and safe antipyretic in children, and at present there are no data indicating other more preferable antipyretics.[8-9]

The sample size of this study was too small to assess the effect of acetaminophen prophylaxis on the more severe reactions associated with DTP vaccines, such as seizures, hyperpyrexia, and neurologic reactions. Since the causes of the more severe but less common reactions after DTP vaccination are not known, it is difficult to predict whether prophylactic acetaminophen would reduce their rate of occurrence. Parents are very concerned about the adverse reactions to all vaccines, especially to the pertussis vaccine. We conclude from the results of this study that acetaminophen prophylaxis did not significantly reduce the frequency and severity of the common reactions to DTP vaccine.

Our conclusion is that there is no basis for recommending 2 doses of acetaminophen for prophylaxis of DTP vaccine-induced adverse reactions. Another choice for DTP vaccine is acellular pertussis vaccine. Although it has fewer adverse reactions than the present whole-cell pertussis vaccine,[26—28] the prophylactic effect of acetaminophen with such a vaccine has not been determined.

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