STUDENTS' CORNER
LETTER TO THE EDITOR

Introduction of rotavirus vaccine in Pakistan — the need to be vigilant for intestinal intussusception in children

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Madam, rotavirus-associated gastroenteritis is a significant cause of diarrhoeal illness and under-5 mortality in developing countries such as Pakistan. A 2016-2017 audit report from Pakistan stated that over the preceding four years, rotavirus diarrhoea has been responsible for deaths of 2.6 million children in the country.[1] Given its immense disease burden, vaccination against rotavirus is a key preventive measure that is being implemented globally. In 2017, Pakistan also adopted routine rotavirus vaccination as part of its Expanded Program for Immunization (EPI), representing a major step towards reducing childhood morbidity and mortality from diarrhoeal diseases.

Despite wide temporal and regional diversity of rotavirus strains being reported throughout the Indian subcontinent, a study based in Lahore, Pakistan identified the G2P and G9 genotypes as the most prevalent among children suffering acute gastroenteritis.[2] Nevertheless, it has been shown that rotavirus vaccines (Rotarix and Rotateq) generate heterotypic immune response, providing equivalent efficacy against a vast range of rotavirus genotypes.

Although the monovalent vaccine is generally safe with a favourable benefit-risk ratio, it is associated with the potentially serious, albeit rare, adverse effect of intestinal intussusception.[3] Intussusception refers to intestinal obstruction caused by telescoping of a bowel segment into its adjacent distal segment, and is the commonest cause of acute abdomen in children. Early diagnosis and rapid treatment with barium or contrast enema is critical in a case of suspected intussusception. If the recognition is delayed and if treatment is not instituted promptly, the condition can progress to a surgical emergency; as ischaemic infarction of the obstructed bowel segment can lead to life-threatening complications including bowel perforation and peritonitis.

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A meta-analysis reported that rotavirus vaccination markedly increased the risk of developing intussusception, with relative risk within one week of the first dose being 5.71 (95% confidence interval, 4.50-7.25).[4] An Indian study identified odds ratio of 1.34 (not statistically significant) of confirmed intussusception in vaccine-recipients versus placebo-recipients; however incidence rate varied by geography.[5] The risk of vaccine-related intussusception may be minimized by administering the first dose only between 6 and 15 weeks of birth — although the strict upper age restriction has been relaxed by the World Health Organization (WHO) for developing countries, and by avoiding administering to infants with a history of intussusception, intestinal malformation, or chronic gastrointestinal disease.[3] Intussusception presents as colicky abdominal pain, bilious vomiting, "red currant jelly" stool, and a sausage-shaped mass may be appreciated upon abdominal palpation. This clinical picture must be differentiated from normal self-limiting side effects of rotavirus vaccination, i.e. mild fever, vomiting and mild flu-like illness.

With the recent introduction of rotavirus vaccine in EPI Pakistan, it is pertinent to revisit the evidence regarding prevention and best management of vaccine-associated intussusception. While WHO-recommended national post-marketing surveillance is ongoing to further define epidemiology, clinicians must hold a high index of suspicion for dealing with potential cases of rotavirus-related intussusception, to avoid unnecessary delay in diagnosis. Parents should be counselled when the child receives the vaccine dose (at age 6 weeks and 10) on how to recognize alarm features of dehydration or intussusception and when to seek urgent medical attention.[3] Paediatricians, general practitioners, nurses and lady health workers involved in childhood immunization programmes should be sufficiently well-informed to counsel parents, and to identify alarm symptoms warranting immediate intervention.

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