Pertussis (whooping cough) is a highly contagious, life-threatening, vaccine-preventable respiratory infection. Adults can infect infants who have not completed their primary immunization schedule. Besides, the infection can be asymptomatic among adults so that the reported cases of pertussis reflect only a fraction of the actual number of the patients in Turkey. The aim of this study is to determine the antibody levels against B. pertussis toxin (PT) and filamentous heamagglutinin (FHA) in ages from 6 months to ≥ 60 years in Izmir, Turkey. The study population consisted of 400 healthy subjects. A cluster of sample design developed by EPI of the World Health Organization was carried out for the selection of the study population. Anti-PT and anti-FHA levels were tested by in-house ELISA in Public Health Institution of Turkey. Anti-PT IgG levels of <10 EU/ml, ≥10 EU/ml and ≥100 EU/ml were accepted as non-immune, immune and possible acute/recent infection, respectively. Of the study population 8.5% had <10 EU/ml, 68.2% had 10–100 EU/ml, and 23.3% had ≥100 EU/ml anti-PT IgG antibodies. According to anti-PT IgG antibody levels 23.7% of the cases were correlated with possible acute/recent infection. The incidence of possible acute/recent infection (≥ 100 EU/ml anti-PT antibodies) was highest among 10–14 and 20–29 years old. The incidence was lowest (18.9%) among 5–6 years old and increased in the school age and was highest (34.3%) among 15–19 years old. Although high infant pertussis vaccination coverage in Turkey, our results showed that, pertussis is endemic, particularly in adolescent and adults. Adolescent and adults can be a major reservoir for the disease who haven’t completed their primary immunization.

### Intensive Care and Paediatric Emergency Care Medicine

**Clinical application of biomarkers for children with severe enterovirus 71 infection**

**Background** Severe enterovirus 71 (EV71) infection in children can result in high morbidity and mortality. The purpose of this study was to use biomarkers for detection of EV71 infection with cardiac involvement.

**Methods** A total of 53 children, aged 2.5 ± 1.7 years, were studied. Patients were divided into three groups. Group I comprised 30 normal control patients. Group II included 20 patients with EV71-stage 2 infection, and group III included 3 patients with EV71-stage 3 infection. The demographic data, laboratory results and plasma BNP levels were statistically analysed.

**Results** All group II patients recovered completely without neurological sequelae. Two patients in group III were rescued by ECMO and successfully weaned off and survived without cardiac complications. The group III patients had higher plasma troponin-I, creatine kinase-MB fraction, B-type natriuretic peptide (BNP) level and BNP z-score than those of other groups. The median BNP values were <5, 9.5 and 238 pg/ml, and median of BNP z-scores were -2.02, -0.22, and 6.11 in the three groups, respectively. Using a BNP cut-off value of 100 to identify cases with concomitant severe EV71 infection and acute heart failure, the sensitivity and specificity were 100% and 100%, respectively. The group III patients had higher urine catecholamine levels than those of group II (p < 0.01).

**Conclusions** Children with severe EV71 infection have varying degrees of myocardial stress that would be caused by