Determinants of severe pneumonia among children aged under five years presenting to Kakamega Provincial Hospital, 2012

Dickens Otieno Onyango

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ABSTRACT

Globally, pneumonia is the leading cause of death in children under the age of five years. In Kenya, it is the second leading cause of morbidity and mortality, accounting for greater than 30,000 deaths among children under the age of five years annually. This study was conducted in order to determine risk factors for severe pneumonia.

A case control study was conducted at Kakamega Provincial General Hospital in western Kenya. Children under the age five years with a diagnosis of pneumonia were recruited into the study. Cases were children diagnosed with severe pneumonia whereas controls were children with non-severe pneumonia. Case definitions were adapted from the Integrated Management of Childhood Illnesses' (IMCI) guidelines. Cases were recruited by systematic random sampling whereas controls were recruited sequentially. Structured questionnaires were administered to parents or guardians. Data was collected on social and demographic factors of parents or guardians, nutritional status and environmental risk factors at home. Bivariate analysis was done followed by stepwise unconditional logistic regression to determine risk factors for severe pneumonia. Odds ratios and 95% confidence intervals were calculated for each exposure variable. Chi square tests were used to test for statistical significance; the significance level was set at $p < 0.05$.

One hundred and three cases and 103 controls were recruited into the study. The median age of cases was 14.0 (Range 3-58) months and controls 14.0 (Range 2-54) months. Those who used herbal medication at home (OR=3.41; 95% CI, 1.45-8.05), were hospitalized with diarrhea in the previous 6 months (OR=2.18; 95% CI 1.01-4.66), had a co-morbidity (OR=3.10; 95% CI 1.24-7.74), or had contact with a relative with upper respiratory tract infection (OR=2.82; 95% CI 1.27-6.26) and those who sought medical treatment after more than three days of illness (OR=2.86; 95% CI 1.62-5.06) were more likely to have severe pneumonia. Those who received antibiotics at home (OR=0.38, CI-0.19-0.75) were less likely to have severe pneumonia. On unconditional logistic

regression, comorbidity (OR=3.8, CI-1.4-10.6), delay in seeking medical treatment for three days or more (OR=2.3, CI-1.2-4.2) and contact with a relative with upper respiratory tract infection (OR=2.7, CI-1.1-6.5) were independent risk factors for severe pneumonia. Receiving antibiotics at home (OR=0.4, CI-0.2-0.8) was an independent protective factor.

Co-morbidity and delay in seeking treatment were main risk factors for severe pneumonia. The ministry of health should enhance efforts to ensure co-morbidity is identified and treated promptly. Health education is necessary to sensitize parents on timely health facility visits. Community health workers should be engaged in pneumonia prevention and control activities especially health education and timely referral.