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Title: Changes in stop ventilation HRCT of chest following antibiotics in infants with pulmonary exacerbation of cystic fibrosis

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Body: Progressive lung disease plays an important role in CF morbidity. CF exacerbations are associated with worsening pulmonary structural changes in infants but reversal of such changes after i/v antibiotics is not reported in infants. Methods: After local IRB approval, charts and radiological studies of all patients with CF who underwent stop ventilation HRCT of chest under sedation before and after 2 weeks of i/v antibiotic therapy for CF exacerbation during 2000-2012 at Nationwide Children's Hospital, Columbus, OH, were reviewed and included in this study. CT studies were read separately by a pediatric radiologist and a pediatric pulmonologist and change was accepted if both agreed. Results: 29 studies were done in 21 patients. Male: Female was 8:13. Mean age in weeks 20.8±47. Seventeen of 29 received home i/v antibiotic therapy. Mean hospital days were 7.7 ± 6.8. Mean antibiotic days were 17.8 ± 4.9. Both inspiratory and expiratory films were equally effective in diagnosing disease. Bronchiectasis was not seen in any scan before or after antibiotic therapy. Mucous plugging was noted in one which improved after therapy. Air trapping was noted in 28 of 29 scans before therapy and was only noted in 16 after therapy; all were improving. Pneumonia was noted in 12 scans before therapy and was noted only in 3 after therapy; all were improving. Atelectasis was noted in 12 scans before therapy and was noted in only one after the therapy which was resolving. Conclusions: There is significant improvement noted by stop ventilation HRCT of chest in all measures of structural changes in infants with CF exacerbation after antibiotic therapy.