Use of intravenous (IV) aminophylline in acute exacerbations of COPD with decompensated acidotic type 2 respiratory failure (T2RF) requiring non-invasive ventilation (NIV)

Dr. Edward 2433 Benison edward.benison@nhs.net MD 1, Dr. Mithun 2434 Murthy mithunmurthy79@yahoo.com MD 1, Dr. Rajesh 2435 Yadavilli dryadavilli@hotmail.com MD 1 and Dr. Hassan 2835 Burhan Hassan.Burhan@rlbuht.nhs.uk MD 1. 1 Respiratory Medicine, Royal Liverpool Hospital, Liverpool, United Kingdom.

Background IV Aminophylline is commonly used in patients presenting with acute exacerbations of COPD (AECOPD). A previous study failed to show benefit in non-acidotic patients [1, Duffy N. et al. Thorax 2005, 60(9):713-7] albeit showing improvements in pH and pCO2. Side effects of methylxanthines are common and potentially serious. Aim We aimed to evaluate the use and side-effects of IV aminophylline in AECOPD presenting with acidotic T2RF who also received NIV. Methods Prospective data collected on 24 patients admitted to the Royal Liverpool Hospital with acidotic AECOPD. Results 20/24 (83%) were current or ex-smokers with Mean (SD) 43 (32) pack years. Mean [SD] pH 7.22 [0.10]. 12 (50%) patients were previously on oral theophylline. IV aminophylline was commenced in the emergency department in 62.5%. Only 14 (58.3%) patients were weighed prior to maintenance dose prescription. 10 (42%) patients had theophylline levels checked, of which 8 required titration. Mean (SD) duration of infusion was 2.7 [2.2] days. In 7 patients (29.1%), infusion was stopped due to side effects. Mean (SD) duration of NIV was 1.7 (1.3) days and mean (SD) length of stay 13.4 [10.5] days. 5 (20%) patients died during admission; 1 due to acute coronary syndrome where Aminophylline may have been contributory. Discussion The role for IV aminophylline in AECOPD is not clear, although current guidance allows its use [2, NICE CG 101, June 2010]. IV aminophylline requires careful titration and monitoring which does not always happen and may lead to adverse effects. Further evidence of benefit, especially in acidotic AECOPD is required.