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S61 A SYSTEMATIC REVIEW AND META-ANALYSIS FOR THE ASSOCIATION OF PARACETAMOL AND CHILDHOOD ASTHMA: BREATHING NEW LIFE INTO AN OLD MYTH?

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Introduction and Objectives Paracetamol is globally the most frequently prescribed drug amongst infants being employed in a variety of different contexts – from acute febrile illnesses to postoperative analgesia. Prior epidemiological evidence had long inferred a correlation between paracetamol to the ontogeny and exacerbation of asthmatic symptoms, leading to some clinicians advocating for a total prohibition. In view of the evidence being primarily from cohort studies, uncertainty persisted about the strength of the evidence as concerns were raised about the validity of observational cohort studies to ascertain causation, particularly in the absence of a placebo or a control group.

Methods A systematic review of the medical literature search was performed from bibliographic databases that included: Pubmed/Medline, EMBASE, CINAHL, CENTRAL, and Google Scholar; from 1975 until June 2017, using a prospective and explicit search criteria. The Mantel Haenszel (MH) method using a random effects model calculated the weighted odd ratio (OR).

Results 256 studies were identified from abstracts and titles with 9 studies being included in this review: 7 were prospective cohorts studies and two RCTs. The study ascertained that paracetamol was not associated with increased risk of asthma symptoms: MH-OR 0.083 (95% CI 0.051–0.1332). However,

the substantially high degree of heterogeneity ($I^2=99\%$) illustrated the limitations of combining the weighted MH-OR from cohort studies. Four prospective cohort studies reported a statically significant association between paracetamol and asthma symptoms, whereas a well conducted, rigorous, double blinded RCT found no significant difference. The potential mechanisms by which paracetamol induced bronchospasm has not been fully elucidated; however the depletion of glutathione in lung parenchyma, increased intra and extra-mitochondrial oxidative stress, and reactive oxygen species are all thought to have a contributory role.

Conclusions Whilst prior cohort studies had previously inferred causation between paracetamol and the exacerbations of asthma symptoms, a well conducted and rigorous RCT demonstrated no significant association. Notwithstanding the limitations of meta-analysis, we recommend that paracetamol remains safe, with usage being contextualised to follow current best practice paradigms. Reflectively, the review raises the caveat of the unquestioned advocacy of paracetamol or any drug as a cultural axiom.

S62 IDENTIFYING THE CHILD (5–12 YEARS) WITH ASTHMA AT INCREASED RISK OF ATTACKS: THE AT-RISK CHILD WITH ASTHMA (ARC) SYSTEMATIC REVIEW

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Introduction and Objectives Asthma is the commonest long-term condition in children with attacks impacting on both

Abstract S61 Figure 1 Summary of the included studies, a forest plot for random effects meta-analysis of odd ratios and summary of the risk of bias.