

Abstract P228 Table 1 Summary of studies

Study and population (n)	Study Objective	Supplement and dose	Outcome	Quality rating
Arm et al, 1988 n=20	To test the effect of fish oil supplements on asthma control and neutrophil function.	10 week, daily supplements containing 3200 mg EPA and 2200 mg DHA compared to control group taking olive oil capsules (dose not stated).	1. No significant difference in self-report symptoms between the two groups. 2. No significant change in neutrophil count.	Strong
Arm et al, 1989 n=17	To evaluate effect of fish oil supplements on airway response to allergens.	10 week, daily supplement capsules containing 3200 mg EPA and 2200 mg DHA compared to control group taking olive oil (dose not stated).	1. No significant difference in peak flow, symptom scores or bronchodilator use. 2. Significantly attenuated late asthmatic response following allergen challenge after supplementation.	Moderate
Brannan et al, 2015 n=23	Whether Omega-3 fatty acids inhibit airway sensitivity to inhaled mannitol, a test for bronchial hyper responsiveness.	3 week, daily dose of 400 mg EPA and 200 mg DHA vs control group taking a placebo containing a blend of omega-6 and omega-9 Fatty acids.	No difference in FEV1 between intervention and control group.	Strong
Emelyanov et al, 2002 n=46	Assess effect of New Zealand Green-lipped mussel supplement on asthma symptoms and Peak expiratory flow rate (PEFR)	8 week, daily capsule of lipid extract containing 50 mg of polyunsaturated fatty acids EPA and DHA compared to control taking daily 150 mg olive oil capsules.	1. No difference in mean FEV1 or evening PEFR. 2. Mean morning PEFR higher after supplementation compared to control. 3. Significant reduction in daytime wheeze but not bronchodilator use in intervention group.	Strong
Lindermann et al, 2009 n=21	To evaluate impact of the medical food EFF1009 containing fatty acids gamma-linolenic acid (GLA), DHA and EPA on asthma-related quality of life.	4 week, daily meal of EFF1009 containing 750 mg GLA, 500 mg EPA, 350 mg DHA compared to control taking a placebo emulsion contained no GLA, EPA, or DHA.	1. No significant difference in FEV1. 2. Significant improvement in self-reported asthma symptoms using the Asthma Control Questionnaire after supplementation.	Strong
Mickleborough et al, 2006 n=16	To investigate effect of fish oil supplements on exercise induced bronchoconstriction (EIB)	3 week, daily dose of fish oil capsules containing 3200 mg EPA and 2000 mg DHA compared to control taking olive oil capsules (dose not stated).	1. No significant difference baseline FEV1. 2. Significant attenuated EIB response after supplements. 3. Significant reduction in bronchodilator use after supplements.	Moderate
Mickleborough et al, 2013 n=20,	Evaluate the effect of New-Zealand green-lipped mussel supplement (PCSO-524) on airway inflammation and bronchoconstrictor response to eucapnic voluntary hyperpnoea (EVH).	3 week, daily dose of PCSO-524 containing 72 mg EPA and 48 mg DHA compared to control group taking daily 150 mg olive oil capsules.	1. Bronchodilator use significantly reduced whilst taking supplement compared to normal diet or placebo. 2. Significantly improved mean asthma symptom scores. 3. Significantly improved morning and evening peak flow.	Strong

EPA: Eicosapentaenoic Acid, DHA=Docosahexaenoic acid, FEV1=Forced Expiratory Flow

Quality Rating adapted from the quality assessment tool for quantitative studies published by the effective public health practice project

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A SYSTEMATIC REVIEW OF THE IMPACT OF RHINITIS AND ITS TREATMENT IN SEVERE ASTHMA

¹J Aamir, ²S Fowler, ³M Khan. ¹Manchester Medical School, Manchester, UK; ²Division of Infection, Immunity and Respiratory Medicine, School of Biological Sciences, Faculty of Biology, Medicine and Health, Manchester Academic Health Science Centre, The University of Manchester, Manchester, UK; ³University Department of Otolaryngology, Central Manchester University Hospitals, Manchester, UK

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Background The unified airway hypothesis proposes rhinitis and asthma are manifestations of a single inflammatory process. However, evidence regarding the association between allergic rhinitis/chronic rhinosinusitis (with or without nasal polyposis) and severe asthma is lacking. This systematic review aimed to identify the relationship between severe asthma and upper airway disease with the objective of understanding of how they are best jointly managed.

Methods We included relevant studies published between 2007 and 2017 in English. Studies were assessed for relevance and quality using predetermined criteria. Two authors independently reviewed the evidence using the GRADE system.

Results Thirteen studies were included; none were randomised controlled trials and five were non-randomised controlled studies. Four themes were identified across the literature: 1. the relationship between allergic rhinitis and severe asthma; 2. the impact of allergic rhinitis treatment on severe asthma; 3. the relationship between chronic rhinosinusitis and severe asthma; 4. the impact of chronic rhinosinusitis treatment on severe asthma. Evidence pertaining to each theme was assessed as low quality and Results varied. Three studies demonstrated weak evidence for increased prevalence or severity of allergic rhinitis in severe asthma. One study demonstrated no relationship. Six studies demonstrated weak evidence for the increased prevalence or severity of chronic rhinosinusitis in severe

asthma, four studies demonstrated no relationship. Evidence from one uncontrolled study suggested symptoms of severe asthma may improve following combined surgical and medical management. Another uncontrolled study showed that allergic rhinitis symptoms improved following treatment of severe asthma with omalizumab.

Conclusions Though a unified airways model supports the relationship between rhinitis and asthma, evidence regarding severe asthma specifically is of low quality and Results are varied. Although it is likely that rhinitis symptoms improve alongside successful treatment of severe asthma, adequately powered randomised studies are necessary to substantiate this relationship.

P230 DOES THE GLOBAL ASTHMA VISUAL ANALOGUE SCALE RELATE TO THE ASTHMA CONTROL QUESTIONNAIRE?

S Jabbal, B Lipworth. *University of Dundee, Dundee, UK*

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Control based asthma management results in improved asthma outcomes. The Asthma Control Questionnaire (ACQ-6), is a widely used and well validated metric which strongly predicts future exacerbations.¹ It demarcates between controlled (C), partially controlled (P), and uncontrolled (U), based on cut point scores of <0.75, 0.75<1.5, and ≥ 1.5 respectively. The global asthma visual analogue scale (VAS) is a 10 cm continuum indicating the overall symptom burden.² It discriminates GINA categories of C, P and U as <1.5, 1.5<7.19, and ≥ 7.19 respectively. We evaluated how VAS relates to ACQ in terms of predefined GINA cut points. We analysed n=87 patients who attended for asthma screening into clinical trials. 90% of patients were receiving ICS(mean BDP equiv 675 $\mu\text{g}/\text{day}$), of whom 80% received ICS/LABA, 42% with LTRA, mean FeNO 45 ppb, mean FEV1 89%, and mean number +ve skin prick tests were 2. Overall Spearman's correlation was 0.62, $p < 0.001$. Mean VAS levels for ACQ were: C: 2.2 cm (95% CI 1.35–3.06), P: 2.56 cm (95% CI 2.61–4.50), U: 5.27 cm (95% CI 4.46–6.08), i.e., <7.19 cm GINA defined cut off (figure 1). There was no significant difference between patients with $\text{ACQ} \geq 1.5$ vs <1.5 for FeNO (51 ppb vs 41 ppb), or BDP equiv dose (674 μg vs 543 μg). Chi-square test demonstrated a weak relationship between $\text{ACQ} \geq 1.5$ and GINA defined VAS cut off ≥ 7.19 cm. A $\text{VAS} \geq 7.19$ had a sensitivity of 29% and specificity of 92% for detecting an $\text{ACQ} \geq 1.5$. ROC analysis, using ACQ to compare C vs U/P revealed an optimal cut point for VAS of 1.95 (AUC 0.8, sensitivity 88%, specificity 68%). Comparing U vs P/C revealed VAS cut point of 3.2 cm (AUC 0.7, sensitivity 71%, specificity 57%). We conclude that the GINA defined VAS cut off (≥ 7.19) is a poor predictor of control in relation to an $\text{ACQ} \geq 1.5$. Hence, further evaluation is required to define the VAS threshold in relation to control defined by ACQ rather than GINA.

Figure Legend Distribution of ACQ control categories relative to VAS levels.

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- Ohta *et al.* *J Asthma* 2013;50:514–521.

Closing the flood gates of the pleura

P231 THE USE OF INDWELLING PLEURAL CATHETERS IN PATIENTS WITH MALIGNANT PLEURAL EFFUSION AND UNEXPANDABLE LUNG

P Halford, R Bhatnagar, NA Maskell. *University of Bristol, Bristol, UK*

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Introduction British Thoracic Society (BTS) guidelines suggest that Indwelling Pleural Catheters (IPCs) are the best treatment for malignant pleural effusion (MPE) associated with unexpandable lung (UL), where pleurodesis is contraindicated. Although, comprehensive data highlight the benefit of IPCs in MPE, their efficacy in patients with UL is less well known.

Method We conducted a systematic review following searches of the MEDLINE, EMBASE and Web of Science databases up until June 2017. Studies specifically reporting IPC use in patients with MPE and UL were identified.

Results 24 studies using IPCs in MPE in general were analysed, 15 of which stated the proportion with UL. Only 3 trials specifically reported outcomes in patients with UL, ranging from 11–52 patients. 77%–94% of UL patients had symptomatic benefit with IPC. Complication rate ranged from 15%–56% depending on criteria used, common complications reported included pain, cellulitis, catheter leak and occlusion. Self-pleurodesis in the largest trial occurred in 42.3% Mean hospital stay was three days, however only one study reported this. Mortality was mentioned in two papers, with a mean survival of 126 days post-IPC insertion. Incidence of UL in the MPE population undergoing IPC was calculable in five studies, and ranged from 7.5%–41%. Differences were evident depending on criteria for diagnosing UL. One study using video-assisted thoracoscopy in 127 patients had an incidence of 41% whereas another study using post-procedure radiography found UL in 40/295 IPCs (13.6%).

Conclusion There appears to be symptomatic benefit in using IPCs in UL patients. Although complications tended to be relatively minor, their rates appear increased compared to the broader IPC population. However, the lack of consensus in diagnostic criteria for UL, reflected by the varied incidence reported, makes application harder to interpret. Further evidence is needed to establish a consistent approach to UL diagnosis, along with more robust studies addressing incidence. The use of IPCs in this population also needs further, prospective, study, with a focus on patient-centred outcomes and device efficacy. This would ideally include further validation of the finding that IPC's in UL can lead to pleurodesis in a large number of patients.

P232 FACTORS PREDICTING OUTCOMES OF TALC PLEURODESIS IN THOSE WITH MALIGNANT PLEURAL EFFUSIONS AT A BELFAST TEACHING HOSPITAL

E Keelan, R Whitaker, N Magee. *Regional Respiratory Centre, Belfast City Hospital, Lisburn Road, Belfast, Ireland*

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Introduction Malignant pleural effusions (MPE) are a frequent consequence of advanced malignancy, associated with poor prognosis. The British Thoracic Society endorse intercostal drainage and talc pleurodesis as first line management of MPE

Withdrawn: P229 A systematic review of the impact of rhinitis and its treatment in severe asthma

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