Prevalence of adverse psycho-social factors in children with problematic severe asthma
(referred for consideration of a biologic)

Pippa Hall

Lead Nurse Paediatric Respiratory

Royal Brompton Hospital, London

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Prevalence of adverse psycho-social factors in children with problematic severe asthma

P. Hall[1], S. Sonnappa[1], A. Bush[1,2], S. Saglani[1,2], R. Moore-Crouch[1], C. Jackman[1], S. Irving[1] , L. Fleming[1,2]

[1]Royal Brompton Hospital - London (United Kingdom) [2]National Heart and Lung Institute, Imperial College, London (United Kingdom)

Background

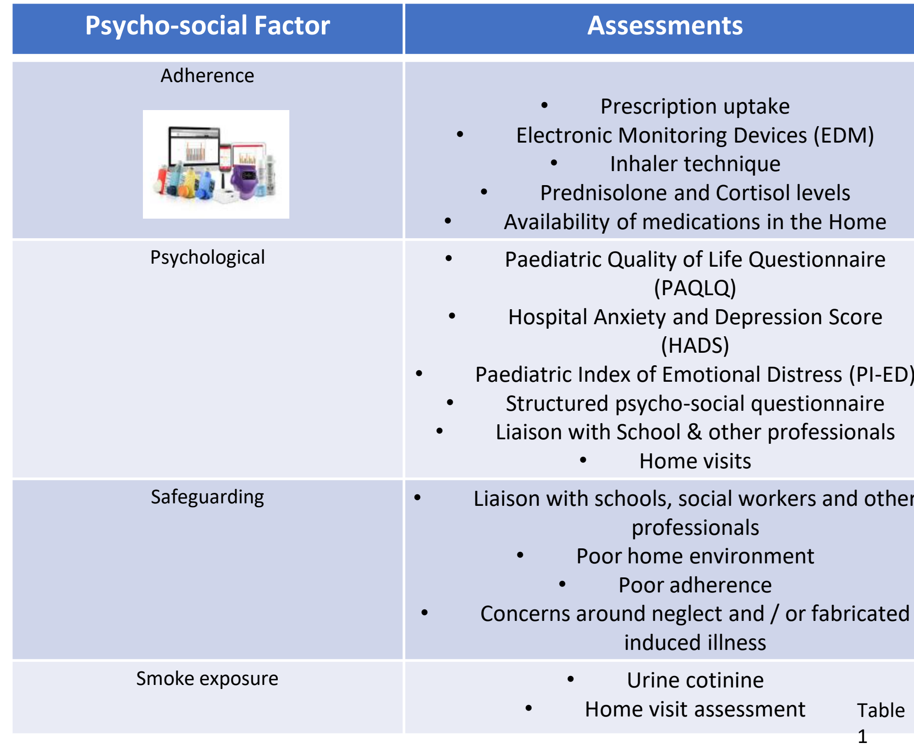
- The Royal Brompton is a tertiary referral centre for children and young people with asthma.
- We receive over 50 referrals a year for Children and Young People (CYP) with problematic severe asthma (PSA) for consideration of a biologic.
- We carry out a nurse-led multi-disciplinary team (MDT) assessment to identify and address potentially modifiable reasons for poor control which may avoid the need for expensive biologics.
- Psychosocial factors (poor adherence, psychological morbidity, safeguarding concerns and smoke exposure) are important and potentially modifiable contributors to poor asthma control.
- Prevalence of safeguarding concerns in children with PSA is poorly documented

Hypothesis

- We hypothesized that there would be a high prevalence of adverse psychosocial factors in children with PSA.

Methods

- Retrospective review of CYP prospectively assessed by an MDT asthma team between 2013 - 2023.
- Methods for assessment described in table 1



Psycho-social Factor	Assessments
Adherence	• Prescription uptake • Electronic Monitoring Devices (EDM) • Inhaler technique • Prednisolone and Cortisol levels • Availability of medications in the Home
Psychological	• Paediatric Quality of Life Questionnaire (PAQLQ) • Hospital Anxiety and Depression Score (HADS) • Paediatric Index of Emotional Distress (PI-ED) • Structured psycho-social questionnaire • Liaison with School & other professionals • Home visits
Safeguarding	• Liaison with schools, social workers and other professionals • Poor home environment • Poor adherence • Concerns around neglect and / or fabricated induced illness
Smoke exposure	• Urine cotinine • Home visit assessment

Table 1

Conclusions

- Psycho-social issues are common in children referred with PSA and an MDT approach is essential, including a home visit
- Safeguarding and psychology are key members of the PSA MDT since assessment of psychosocial factors is an essential component in children being considered for a biologic
- Despite meeting standard eligibility criteria only 60/427 (14%) needed to progress to a biological therapy

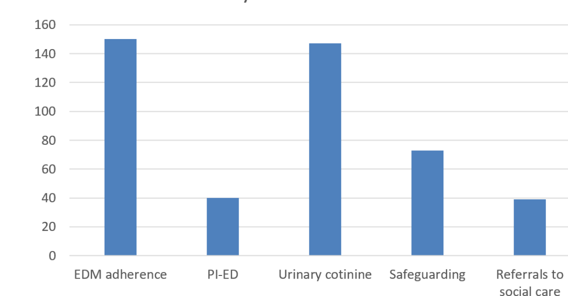
Acknowledgments

Thank you to all the all the CYP and families who have been part of our service and consented for their data to be used in this piece of work.

Results

- 427 CYP median (range) age 11.7 (5.1 – 17.6) years, 57% male, were assessed.
- Median EMD adherence was 70% (range 1 – 100%) and prescription uptake 66% (8 – 100%).
- 150/233 (60%) had adherence <80% when monitored with an EMD
- Median (range) PI-ED score was 13 (0 – 48); 40/214 (19%) had a score ≥20, indicating significant emotional distress.
- Median PAQLQ score was 4.76 (range 1.38 – 7) indicating a negative impact on quality of life in most children.
- Safeguarding issues were identified in 73 (17%) and 39 referrals to Children's Social Care were made
- Raised urinary cotinine was identified in 148 (.34%) indicating either active or passive exposure to cigarette smoke / vaping.

Figure 1; Number of CYP with psycho-social issues identified



Royal Brompton and Harefield hospitals NHS

- Background to the audit
- What our difficult asthma service looks like?
- Summary of biologics
- Results of our audit
- Take home messages and discussion points

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- Psychosocial factors (poor adherence, psychological morbidity, safeguarding concerns and smoke exposure) are important and potentially modifiable contributors to poor asthma control.
- Prevalence of safeguarding concerns in children with PSA is poorly documented

Hypothesis

- We hypothesized that there would be a high prevalence of adverse psychosocial factors in children with problematic Severe Asthma (PSA)

Methods

- Retrospective review of CYP prospectively assessed by an MDT asthma team between 2013 - 2023.
- Psychosocial factors were identified as:
    - Poor adherence
    - Psychological
    - Safeguarding
    - Smoke exposure

RBH: MDT Structured Assessment

First Clinic Appointment
- Respiratory Consultant
- CNS
- Physiotherapist
- Psychology assistant

Assessments:
- Spirometry and BDR
- FENO (induced sputum)
- Asthma control (ACT/C-ACT)
- Quality of life (PAQLQ)
- Psychosocial questionnaire and PI-ED
- Urinary cotinine
- Allergy testing (SPTs and sIgEs)
- Other bloods (FBC)
- Synacthen test

Adherence monitoring:
- Issued with a Smartinhaler

Additional Information
- Local team
- GP (including prescription check)
- Home and School visit

Electronic Monitoring 6 – 8 weeks

Follow up Appointment
- Respiratory Consultant
- CNS
- (Physiotherapist)

Assessments:
- Spirometry and BDR
- FENO (induced sputum)
- Asthma control (ACT/C-ACT)
- Quality of life (PAQLQ)

Adherence monitoring:
- Smartinhaler data downloaded

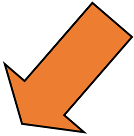
Aims:
1. Confirm the diagnosis of asthma
2. Identify modifiable factors
3. Plan appropriate assessments and interventions

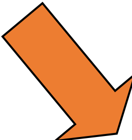
The importance of nurse-led home visits in the assessment of children with problematic asthma

M Bracken,[1] L Fleming,[2] P Hall,[1] N Van Stiphout,[1] C Bossley,[1] E Biggart,[1] N M Wilson,[1] A Bush[1]

Problematic Severe Asthma
High dose treatment
AND
poorly controlled asthma
AND / OR
frequent exacerbations

ADDRESS THE BASICS OF
ASTHMA MANAGEMENT





70%

Poor control due to modifiable factors

"Difficult Asthma"

30%

Ongoing poorly controlled symptoms despite attention to modifiable factors

"Severe Therapy Resistant Asthma"

Bush, Lancet 2008;372:1019-1020

ROYAL BROMPTON DIFFICULT ASTHMA SERVICE

Biologic summary

	Omalizumab	Mepolizumab	Dupilumab	Tezepelumab
Mode of action	Antibody against IgE	Antibody against IL-5	Antibody against interleukin (IL)-4 receptor alpha	Antibody against TSLP
Indication	Confirmed IgE mediated asthma (+ve IgE to aeroallergen) FEV1 <80% in adolescents	Refractory eosinophilic asthma Blood eosinophils 300 cells/microlitre or more in previous 12 months	Blood eosinophil count 150 cells/ microlitre or more and FENO of 25 ppb or more Not responded to Mepo	Severe asthma in people >12 yrs, when treatment with high-dose ICS plus another maintenance treatment has not worked well enough No biomarker or phenotype restrictions
Age	6 years	6 years	6 years	12 years
Asthma control	Continuous or frequent (4 or more courses in last 12 months)	4 or more exacerbations needing OCS in last 12 months OR continuous OCS at least equivalent to 5mg/day for the last 6 months	At least 4 or more exacerbations in the previous 12 months	3 or more exacerbations in the previous year, or are having maintenance oral corticosteroids
Administration	2 or 4 weekly s/c injections (weight and IgE)	4 weekly s/c 100mg >12 yrs 40mg aged 6 – 11yrs	2 or 4 weekly s/c injections	4 weekly s/c injections
Review period	16-week review to continue – asthma has markedly improved	12-month review to continue – clinically meaningful reduction in the number of severe exacerbations needing systematic corticosteroids or a clinically significant reduction in continuous oral corticosteroid use	12-month review to continue – rate of severe asthma exacerbations has been reduced by at least 50% after 12 months	12-month review to continue – rate of severe asthma exacerbations or dose of OSC has bene reduced by at least 50% after 12 months

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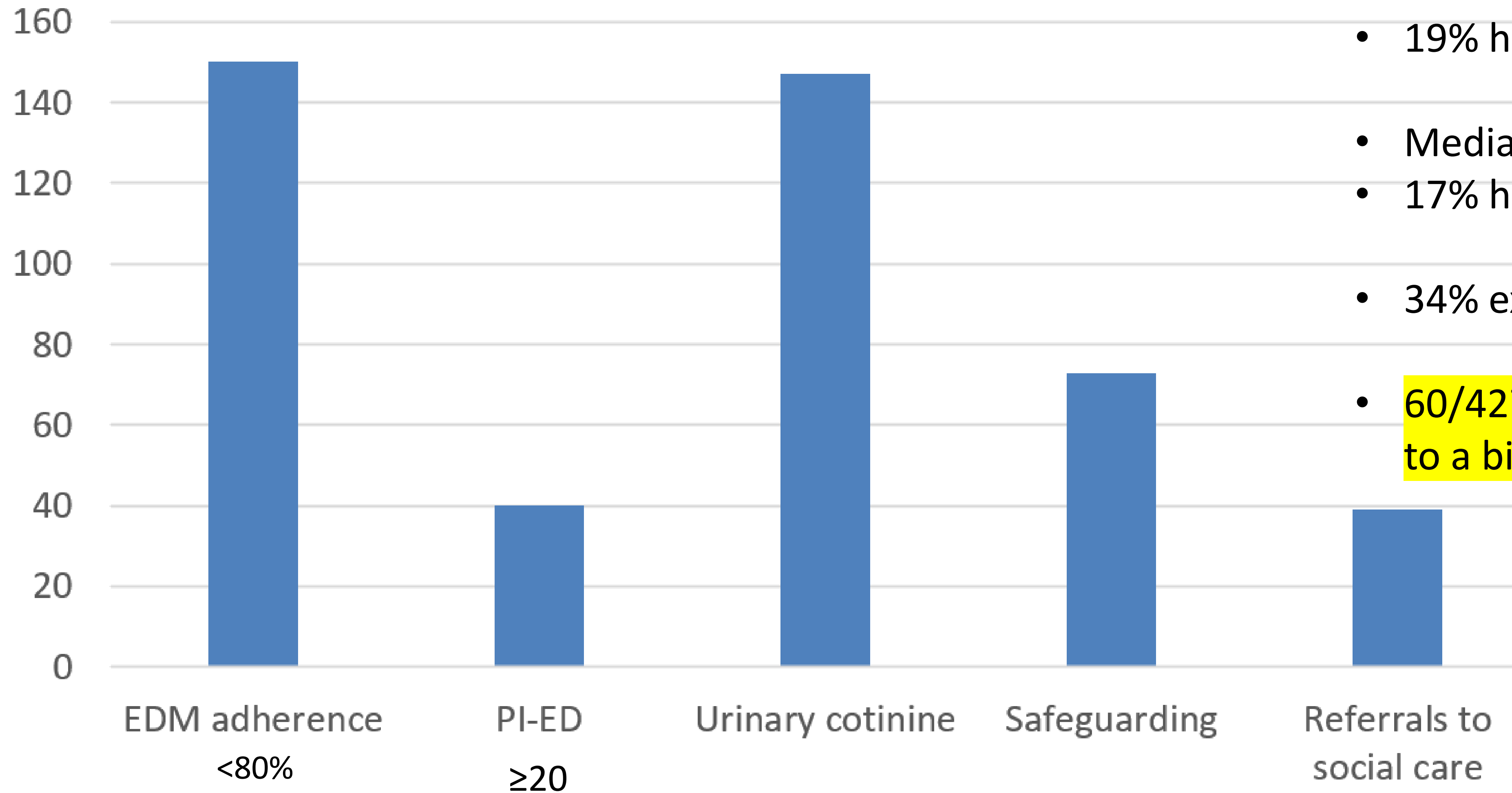
Psycho-social Factor	Assessments
Safeguarding	• Liaison with schools, social workers and other professionals • Poor home environment • Poor adherence • Concerns around neglect and / or fabricated induced illness

Psycho-social Factor	Assessments
Smoke & Vape exposure	• Urine cotinine • Ask? • Home visit assessment

Results: Number of CYP with psycho-social issues identified



- 427 CYP were assessed
- 60% had adherence <80% (EDM)
- 19% had a PI-ED ≥20
- Median PAQLQ was 4.76
- 17% had safeguarding issues
- 34% exposed to cigarette smoke
- 60/427 (14%) needed to progress to a biological therapy

Conclusions

- Psycho-social issues are common in children referred with PSA and an MDT approach is essential, including a home visit
- Safeguarding and psychology are key members of the PSA MDT since assessment of psychosocial factors is an essential component in children being considered for a biologic
- Despite meeting standard eligibility criteria only 60/427 (14%) needed to progress to a biological therapy

ROYAL BROMPTON DIFFICULT ASTHMA SERVICE

Discussion points

- Often despite psycho-social factors we will still progress to a biologic – we accept that it's not always possible to rectify all remedial factors
- Prescribing a biologic is a form of directly observed therapy and we need to do whatever we can to keep our CYP safe
- The assessment is lengthy and time consuming
- EMD are expensive
- Not all centres have access to a psychologist
- Home visits can be time consuming in view of large geographical referral area – liaising with local teams is vital
- Monthly contact with the CNS - ? support

What we see

Thank you for listening and any Questions?

P.hall@rbht.nhs.uk