A Standardized Vs Individualized Approach in Managing Difficult Asthma: A Dilemma

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ABSTRACT

Background: Adherence to clinical practice guidelines often aids in improving clinical decisions. However, doctors at times have to look beyond clinical practice guidelines to treat their patients. Situational awareness and clinical experience often puts doctors in better position to treat and manage asthmatic patients.

Case presentation: A 52 year old Indian lady with chronic persistent asthma was treated by Department of Respiratory Medicine, Hospital Pulau Pinang. Despite initial improvement using treatment strategy based on asthma guidelines, patient continued to be poorly controlled with frequent exacerbations and severe impairment to daily activities.

Spirometry values did not correlate with the patient clinical behavior. The patient IgE levels were significantly elevated at 590 KU/L. A decision was made to commence her on anti IgE monoclonal antibody, Omalizumab (Xolair®). After 12 months, the patient made significant improvement in asthma control and quality of life.

Conclusion: Making appropiate and timely clinical decision results in reducing asthma morbidity and mortality.

Keywords: Asthma, Diagnosis, Guideline, Medication, Treatment

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INTRODUCTION

With the estimated asthmatic population to reach about 400 million globally in year 2025 [1], asthma has now being considered as chronic disease [2]. The treatment and management strategies for asthma have changed in past decade and clinical practice guidelines were updated regularly as per these changes. These guidelines are systematically developed statements to assists practitioners about appropriate health care for specific clinical circumstances [3]. Apart from treatment and management strategies these guidelines offer discharge protocols, treatment in co-morbid conditions and other details of clinical practice. It has been observed that clinical practice guidelines can improve the quality of care [4,5]. Clinical practice guidelines are a point of reference for diagnostic test, severity assessment, treatment protocols and aid in improving the quality of clinical decision making. However, the guidelines may at times be misleading or misinterpreted [6]. Flawed clinical practice guidelines provide inaccurate information and clinical advice; they may encourage ineffective and wasteful intervention [7]. The guidelines may at time be strict and inflexible in approach leaving little room for practitioners to modify the treatment according to the clinical circumstances [8]. Perhaps the most important, the practitioners own understanding of the patient condition and circumstances may be such that following a guideline would not do any good to patient. The lack of options or recommendations for shared decision making and importantly ignoring patient preferences is a dilemma that practitioners face in their clinical practice [8].

Patients with allergic asthma are at high risk for asthma morbidity and mortality [9].In recent years IgE has been identified as an important mediator in allergic reaction and plays a critical role in allergic induced severe asthma [10,11]. Targeting IgE with Monoclonal anti IgE antibody has emerged to be promising approach in treating patients with allergy induced severe

asthma[12].It forms a complex with free circulating IgE, thus preventing IgE binding to mast cells and other effecter cells[13,14]. Jonathan corren et al studied the effect of anti IgE antibodies on severe allergic asthma in a group of allergic asthma patients. They reported hospitalization was markedly reduced with patients receiving anti IgE antibody treatment [15].

Anti IgE antibody treatment reduced acute asthma attacks and reduced emergency visits [16]. When used as add on therapy with intracorticosteroid (ICS) is well tolerated and effective for treating moderate to severe asthma, it allows ICS dose reduction and in some cases even discontinuation of ICS [17]. Anti IgE antibody significantly attenuates early and late phase of asthmatic airway response to allergen [18].

Presentation of case:

A 52 year old indian lady, with childhood asthma visits hospital pulau penang with uncontrolledd asthma. Subject is a lecturer at a private university. The patient job and quality of life is affected by uncontroled asthma. Patient is a non smoker, had rhinitis since childhood and has a family history of asthma. The Patient had asthma controled and in last 10 years she was only on releaver medications. One week before the visit to the hospital the patient had a acute asthma exacerabration. The patient complains recent asthma exacerabations is affeting quality of life. The patient did not had diabeties melitus but was hypertensive. Blood pressure was 130/70mmHg and Spirometry values were nomral sugesting well controled asthma at the time of

presentation. The patient was compliant with the medications and took medications regularly. Patient counceling was provided and inhaler technique was assed.

The patient had few mild attacks in cited year but did not had any asthma exacerbrations. The doctor added budisonide-formoterol turbohaler to the patient regimn. The patient did not comply and felt tremours and dizziness.The doctor stoped budisonide-formoterol turbohaler and adviced to come again after two months. On next visit the patient seemed improved and reported few nocturnal symptoms.Blood pressure was in control through out the year and was monitered on every visit. Patient had a sudden acute attack and was admited.Patient was naubalised and was put on antibiotic . Regimn was modified and prednisolone 40 mg and salbutamol MDI was added to her regimn.The patient was put to levastation 20 mg ON for increased HDL levels.

 During the next routine visits to the hospital, FEV1 was reported to be 54% of the predicted value suggesting uncontroled severe asthma.It was the first instant when spirometery values corelated with clinical symptoms. The patient reports frequent asthma attacks and frequent nocturnal symptoms.The doctor added salmeterol fluticasone propinate 50/500 and ciclesonide inhaler simultaneoulsy along with systained release theophyline 125 mg BD in regimn.On next visit the patient reports of chest tightness , breathing difficulty and often requiring neubalization . The patient also reports of increase in nocturnal cough, the spirometery values were normal and indicated well controlled asthma.The patient was advised for IgE antibody level. IgE antibody level was 590 KU/L .

Patient was diagnosed with severe allergic asthma and anti IgE antibody treatment was initiated. The patient was given omalizumab 3 vials per month for six months a total of 18 vials. With a dose of 450 mg every 4 weeks,each vial contains 150mg of omalizumab. After two doses of omalizumab the patient complained of fluctuation in blood pressure. The doctor increased the

dose of perindopril to 2.5mg for fluctuation in blood pressure and advised to keep on monitereing the blood pressure by home bp appratus.After 5 cycles of omalizumab the patient feels improvement , requires less naubalizer and has few complains of breathlessness. Although the patient did had a asthma exacerabation once but the overall the patient reports of bieng well. The patient does not report any allergy, dizzines , tremours during her treatment with omalizumab. Four months after the initiation of anti IgE treatment the patient has less episodes of breathlessness and reports of doing well. One year after the initiation of treatment form omlizumab the patient at times is breathless but overall the patient feels beter and her quality of life is improved.

Tabel 1: Time line for spirometery test

Year	Test	Average spirometry	Highest recorded	Lowest recorded
2007	FEV1	88.2%	105%	72%
2008	FEV1	91.8%	102%	87%
2009	FEV1	83.8%	83.8%	76%
2010	FEV1	69.1%	69.1%	54%
2011	FEV1	80%	80%	70%

Table is a record of spirometry test done per visit since year 2007. The table gives information regarding the highest and lowest FEV1 recorded per year. The table also gives an account of average spirometry recorded per year.

DISCUSSION

Asthmatic patients are mostly diagnosed with mild to moderate asthma and are managed by a combination of anti inflammatory drugs. However about 10% of asthmatic patients are symptomatic despite treating them with high dose of corticosteroids and long acting B-2 agonists [19]. A proportion of asthmatic patients remain mismanaged as they are under diagnosed, over treated or undertreated [19]. Severe asthmatic patients utilize a profound proportion of medical resources through hospital admissions, unplanned doctor visits and use of emergency services [20]. Factual findings and close monitoring can greatly improve their quality of life.

The correct diagnosis of asthma cannot be over emphasized. Robinson et al in their study at brompton hospital , 12% of patient who were referred to difficult asthma clinic did not had asthma [21].The guideline gives a clear protocol for diagnosis of asthma but the complexity of the disease makes diagnosis complicated. It is essential that the doctor consider every aspect of the patient presentation to make a proper diagnosis. Small drug particle size improves drug deposition deeper into lungs, despite adding ciclesonide inhaler simultaneously with another corticosteroid the patient asthma remained uncontrolled.

Patients with no relation of clinical presentation and lung function assessment are a challenge to physicians. Some patients are poor perceivers while others are over reactors [22, 23]. Poor perceivers are asymptomatic and deny any symptoms when most patients would experience asthma attack. Poor perceivers are difficult to treat as they may end up with a severe asthma attack or near fetal attack [24]. The over reactors take more than their objective dose and are at the risk of drug side effects. These patients look for their own ease, some prefer tablets over inhalers. Patient convenience should be considered by physicians to manage these patients

Allergic conditions account for 70% of patients in asthma [25]. Introduction of anti IgE antibody agents has given a new dimension for treating severe asthmatic patients and significantly improved quality of life [26]. Targeting IgE in allergy associated severe asthma is an approach that has yielded significant results when symptoms still remain despite the using optimum combination therapy [27]. albert finn et all in a 52 week placebo controlled study selected 525 adults with severe allergic asthma. A 16 week steroid stable phase was followed by 12 week steroid reduction and a final 24 week double blind extension phase. At the end of 16, 12 and 24 week asthma quality of life questionnaire was administered. The patients receiving anti IgE antibody treatment reported significant improvement in all domains of asthma quality of life questionnaire. Moreover a greater proportion of patient receiving anti IgE treatment reported clinical improvement during each phase by add-on therapy of anti IgE antibody [28].

Clinical practice guidelines are an important tool in treating and managing different conditions [29] and are based on scientific facts, following the guideline are expected to yield good results [30-32]. However, the doctors own clinical experience and his first hand knowledge of patient condition often puts him in assessing the situation better. Spirometry is an important indicator for detecting airway obstruction [33, 34]. The patient record suggests normal spirometry values throughout the visit contrary to clinical condition, the doctors tried different combinations to manage the patient according to guideline and often medications were changed with little success.

Asthma guidelines were initially statements regarding the clinical situation, with passage of time they were based on research, established facts and were more reliable. Asthma practice guidelines are a part of clinical practice for more than two decades, in this time they have been continuously being updated and would be continued so on. Perhaps in the upcoming years

researchers would be focusing on to make these guidelines more practicable in daily clinical practice.

CONCLUSION

Patient receives anti IgE antibody and responds well to the treatment. Emphasis should be made on factual clinical findings and proper diagnosis. Doctors at times need to look beyond clinical practice guidelines to treat their patients.

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