

Reflections on Acute Severe Asthma

Asthma remains a significant global burden with evidence suggesting an increase in prevalence, morbidity and mortality in both developed and developing countries.^{1,2} Overall estimates suggest that 300 million people globally have asthma, with the illness being under-diagnosed and under-treated. Worldwide 180,000 deaths annually are associated with asthma and mortality rates have varied significantly over the last 50 years.³

The response by concerned groups has been the development of national guidelines, initially in the United Kingdom in 1990,⁴ stimulating the release of the Global Initiative for Asthma (GINA) guidelines in 1992.⁵ Many countries have now established local guidelines to reflect the national requirements of appropriate care.

In the United Kingdom there appears to have been an impressive reduction in mortality from asthma from 1994 to 2010 in both sexes. However, if the associated reduction in mortality for all causes of death in England is taken into account the reduction in mortality from asthma is less impressive.⁶ When studies have investigated in detail the individual cases of asthma death there remain concerns over accuracy of diagnosis, poor monitoring of severity, inappropriate and inadequate therapy, poor patient adherence to therapy and significant errors and omissions in ongoing care.⁷

There is also concern over the continuing high rates of asthma admissions in the United Kingdom. In England there appear to be significant variations in admissions with a fall in the early part of 2000-01 which was sustained for three years, only to rise again between 2003-04 to 2008-09. Much of this variation can be explained by changes in rates of attendances of small children to emergency units, as treatment policy changes. For England in 2007-08 admission rates for children between 0-4 years is twice that of adults (age 55-64 years).⁸

In Wales there is a population of some three million in total with health care delivered by seven health providers. The age distribution of deaths shows the dominant effect of deaths in elderly patients but there are large variations in death rates between the health providers which are not explained by deprivation. Similarly admission rates vary across Wales again with no relationship between deprivation and admissions.⁹

The overall prevalence rate for asthma globally is between 7% and 10%.¹ Within the United Kingdom the individual countries show variations in prevalence when measured by the Quality Outcomes Framework (QOF).¹⁰ There is again no relationship between prevalence rates and deprivation indices.¹¹

Asthma exacerbations remain a frequent cause for urgent care and attendance at hospital emergency departments.¹² There is evidence that subsets of asthmatics are prone to exacerbations.¹³ In a USA study,¹⁴ 73% had visited an emergency department at least once in the previous year, 21% had six or more visits. The authors concluded that risk factors such as deprivation, poor access to care and inadequate chronic asthma control significantly contributed to the risk of repeated admissions to emergency units. Subsequently a further USA study¹⁵ found that those with a recent severe exacerbation were at significantly increased risk in the future and this was independent of demographic and clinical factors, asthma severity and asthma control. European studies¹⁶ suggest that those asthmatics suffering near fatal episodes are identified by poor adherence to therapy, poor asthma control and less corticosteroid use. However, more recently, *Fahy's* group¹⁷ have reported a large subgroup of asthmatics in which the asthma is persistently non-eosinophilic. These patients have similar bronchodilator responses to salbutamol but were unresponsive to two weeks of combined anti-inflammatory therapy compared to the eosinophilic asthmatic patients.

Various national guidelines have emphasised that accurate assessment of the severity of an exacerbation and the structured therapy for the patient combined with appropriate monitoring of response is the gold standard for such patients. However, in spite of widespread dissemination of guidelines coupled with educational programmes, when acute asthma care has been audited systematically widespread variation in the application of care pathways has been found in many countries.¹⁸⁻²⁰ There are deficiencies in the assessment of severity with over treatment of mild episodes and under treatment of severe attacks. It must be clearly understood that without the formal assessment of severity of the exacerbation, treatment regimens will be variable in effect and is a misuse of resources. Various remedial programmes have been introduced in the United Kingdom but in spite of intense educational policies little improvement has been noted.¹⁹ In Cardiff, following the disappointing results of a nationwide audit,¹⁸ admitted patients are placed on a personalised computer pathway which guides the admitting doctors and triage nurses through the formal assessment of severity which is generated by the computer programme and is then linked to appropriate severity pathways retaining the objective data. There are information screens related to predicted peak flow nomograms, differential diagnosis and consideration of causes of the acute

episode. Built into the programme is a discharge management proforma involving a written management plan for the individual patient and information for the patient's usual medical supervisor. Use of this pathway has resulted in a major improvement in the compliance with national guidelines and an increase in the confidence of emergency staff in managing patients with acute asthma.²¹

Asthma in India is a growing challenge. The Times of India²² predicted that India could be the world asthma capital by 2020 and there are probably 50 million current asthmatic patients in central and southern Asia.²³ With ever increasing urbanisation, spiralling environmental pollution and where standard anti-asthma therapy does not reach a significant number of patients in the general population,²⁴ acute severe asthma will become an ever increasing cause of emergency admissions with resultant financial implications for the health care resources. Shelton in a recent review²⁵ of scarce health resources suggested 20 criteria to make the best use of such resources. He emphasises knowledge of the health burden, with study of the incidence, prevalence, mortality, morbidity and disability adjusted life years as useful in evaluating the burden. The efficacy of interventions in the best circumstances should be studied, e.g. for the public sector in India, it may be acceptable to consider oral corticosteroids and theophylline as maintenance therapy where the inhaled bronchodilators and corticosteroids are not available or are too expensive. There should be scalability in the asthma interventions, e.g. control over pollution and cigarette smoking, as these may be more efficacious in the long-term than investment in high dependency unit facilities. Generating a low-cost service delivery may require nurse or other paramedical expertise rather than hospital based care.²⁶ Simplicity, safety and individual acceptability are further important considerations, e.g. simple spacer devices can be developed locally to ensure satisfactory performance of metered dose inhaler (MDI) aerosols.

Practical solutions will need to be developed at the secondary care level to deal with asthma emergencies. Over-crowded emergency units put patient safety at risk.²⁷ However, developed countries, in spite of a major emphasis on primary care in semi-emergency situations have failed to halt the inexorable rise in emergency attendances. Data from Wales¹⁸ suggests that 25% of asthma admissions are for mild exacerbations. In the United Kingdom there is now greater emphasis on triage and patient streaming to identify the needs of the more seriously ill patient.²⁷ It is likely that Indian hospitals will have to similarly adapt their care systems.

The guidelines developed for Indian patients state that multiple doses of a beta-2 stimulant with or

without ipratropium is the primary bronchodilator intervention followed by oral prednisolone and/or hydrocortisone.²⁸ It is important that spacer devices be used for MDI's; ipratropium is probably indicated in only a small percentage of cases and hydrocortisone is needed only for life threatening severe asthma which normally is less than 5% of all asthma admissions.²⁹ Reassessment is mandatory before discharge and prolonged hypoxia following acute episodes needs to be monitored.³⁰

Indian colleagues will be faced with increasing challenges with a rising incidence of asthma and both national and local collaboration will be required to deal with this burden.

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Plagiarism: The *bête noire* of Scientific Communication

"The only thing worse than quoting me, is not quoting me"

Oscar Wilde

The basic premise of scientific writing remains, that whatever is stated is considered to be the truth, until proved otherwise. Scientific communication is said to be an "implicit contract"¹ between the author and the reader; a contract of faith and a promise of honesty.^{1,2} When an author breaches this contract, he/she is guilty morally and also of perpetuating a false belief or knowledge. Needless to say, wilful promotion of false belief or knowledge is an anathema to the very essence of science. Plagiarism is one such major scientific misconduct where misappropriating of ideas or words occurs without giving credit to the originator.^{1,3}

According to the *Oxford Dictionary*,⁴ the word 'plagiarism' is derived from the Latin word '*plagium*' which means 'kidnapping'. In the English language, this word was introduced in the early seventeenth century by Ben Jonson, a dramatist and playwright.⁵ When Samuel Johnson, the famous English lexicographer, first published *A Dictionary of the English Language* in 1755, the word 'plagiary' was defined as "a thief in literature: one who steals the thoughts or writings of another" and "the crime of literary theft".⁵ Presently, there are various definitions of plagiarism.^{1,6,7} The most expansive one is given by the World Association of Medical Editors:⁷ "*Plagiarism is the use of others' published and unpublished ideas or words (or other intellectual property) without attribution or permission, and presenting them as new and original rather than derived from an existing source. The intent and effect of plagiarism is to mislead the reader as to the contributions of the plagiarizer. This applies whether the ideas or words are taken from abstracts, research grant applications, Institutional Review Board applications, or unpublished or published manuscripts in any publication format (print or electronic).*"

Perhaps the commonest form of plagiarism is 'inappropriate paraphrasing'.¹ The plagiarist purloins text, rearranges it and boasts of the transformation without even acknowledging the original. One may be accused of plagiarism even after the source has been cited. This could occur when phrases or sentences are copied as such from another article and not enclosed within quotation marks.¹ A subtle form of plagiarism is called 'self-plagiarism',¹ also known as 'auto-plagiarism'.⁸ Here, an author comes up with genuinely different data/results, in different subject sample but reuses portions of text from his/her previously published article without due citation.^{1,8} Infringement of copyright can be

included in this form of plagiarism. Although, doctrine of 'fair use' protects the author to reuse a few lines from the text, but to copy large portions may infringe copyright laws.¹ While 'stealing from self' appears oxymoronic, the impropriety lies in a false impression of novelty in work. The concept that one can steal from oneself is not well characterised and still debatable.⁹

It appears that the menace of plagiarism has grown substantially over the last decade.¹⁰⁻¹² An informal survey conducted by the Nature Publishing Group, revealed that a particular journal had rejected almost a quarter of the accepted manuscripts for reasons pertaining to various forms of plagiarism.¹³ While searching extensively for such acts, an editor from Europe, during a 2-year period, found plagiarism in approximately 30% of accepted manuscripts of a peer-reviewed journal.¹⁴ Another important aspect which is impossible to measure is the rampant practice of brazenly lifting slides or even information, for presentations at seminars/ symposia/ conference without giving due credit.¹⁵

With the advent of computers and internet, talks, books, journals, databases and libraries are now available at the click of a mouse. Advances in software have resulted in powerful search tools and word processing software which makes creating 'new' documents by 'copy' and 'paste' a child's play. An editor of *Nature* wrote "students trained today have grown up in an environment where access is taken for granted and attribution only loosely enforced".¹⁶ This power of technology is also being utilised by the authorities. Apart from journal editors, universities are also increasingly resorting to routine use of software to detect plagiarism.¹⁷ It should be stressed that plagiarism software are not without problems. It has been suggested,⁸ though not without concern,¹⁸ that occurrence of six exact words consecutively should be declared plagiarism. An author¹⁹ blogged in *Nature* that one plagiarism detection software listed four genuine independent publications as unverified duplicates. Administrators of plagiarism detection software have highlighted that software are fallible and have stated "We are not the judge or jury of plagiarism. It still needs a human eye to look at the results".¹⁷

In part, plagiarism is borne of an incessant pressure to 'publish or perish'.¹ Unfortunately, in the present academic reward system, it is the quantity and not the quality of publications which usually

forms the basis of future grants/ positions.¹⁶ Further, to have one's work recognised, it has become imperative to publish in English as it has emerged as the *lingua franca* of scientific communication with the widest readership. It is known that scientists from non-English speaking world may copy verbatim simply because the previously published text describes their thought better and they find the accuracy and clarity difficult to resist.²⁰ Cultural differences may also contribute to the problem as the authors may not be aware of what constitutes plagiarism and that it is inappropriate. Lack of awareness, combined with poor linguistic skills and a complete absence of training in this regard leads to blatant plagiarism.

Plagiarism has been termed as "a crime with no victims".⁸ However, plagiarism can have serious consequences for the perpetrator. At the least, plagiarist suffers infamy and often punishment has been meted out. Recently, a university medical dean resigned after plagiarism was reported by students in his speech.²¹ The Committee on Publication Ethics²² has devised a set of detailed, easy to follow flowcharts to help editors in dealing with suspected plagiarism. Rarely, when matters have reached courts, the decisions of institutional committees have been upheld.²³ Sir Iain Chalmers²⁴ has opined that "unless perpetrators face greater sanctions the problem is unlikely to go away".

In India too, this menace is viewed seriously^{25,26} and when detected by editors,²⁷⁻²⁹ appropriate action was taken.³⁰ The Medical Council of India and the Indian Council of Medical Research have both laid down guidelines for medical research but it is felt that these guidelines need refinement²⁶ and "are too general to bring a plagiarist to book".²⁷ Recently, an action plan to combat this plague has been proposed.²⁶ The late Professor Autar Singh Paintal, FRS, our former Director and Editor-in Chief, a stalwart in the field of medical science, foresaw the malady of scientific misconduct and founded in 1986, a 'Society for Scientific Values' with the objective "to promote integrity, objectivity and ethical values in the pursuit of science".³¹

This malady of plagiarism needs to be nipped in the bud. The present generation carries the responsibility to 'pass the baton' to their students, who are in their formative stage and would occupy positions of responsibility in future. Failure to censure students early in their career, during departmental seminars or while preparing research grants might embolden them to resort to misadventures even in thesis/dissertations and research papers. Documents detailing all aspects of plagiarism are available at websites of learned societies of medical editors.^{7,32,33} The 'Office of Research Integrity'¹ documents 27 simple to

understand guidelines on what constitutes plagiarism and how to avoid it. There is a crying need to train students, authors and even editors³⁴ on pertinent issues related to ethics in publication including plagiarism.

In conclusion, plagiarism should be frowned upon. Academia should be aware about the evils of plagiarism and the grave consequences. With advances in technology, it will be easier to commit as well as detect plagiarism. Regulatory policies need to address the issue of misconduct in research in more detail and exemplary punishment administered.^{27,28} Like all human frailties, curing the malady should begin within the individual but external regulation may be necessary to curb this vulnerability.

Over a century ago, Oscar Wilde had sagely advised, "While one should always study the method of a great artist, one should never imitate his manner. The manner of an artist is essentially individual, the method of an artist is absolutely universal. The first is personality, which no one should copy; the second is perfection, which all should aim at."

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