

In this issue of *MeReC Monthly* we review four recent Information Mastery *MeReC Blogs*. The first identifies how even limited exposure to pharmaceutical promotion may influence subconscious attitudes to branded medicines. The other three blogs provide examples of bias in reporting the results of individual clinical studies. These studies emphasise why clinical decisions should not generally rely on claims made in individual papers or reports, but on evidence-based information from organisations with a public sector ethos such as NICE, CKS, SIGN, Cochrane, CRD, Clinical Evidence, DTB and the NPC. Such trusted sources have robust quality assurance procedures in place to base their advice on all relevant and valid information set in the context of the rest of the evidence.

Further information of sources of bias and the skills required to critically appraise clinical trial reports can be found on the Information Mastery 2 — Skills floor of NPCi.

Even limited exposure to pharmaceutical promotion may influence prescribing habits

A study¹ suggests that subtle exposure to small, inexpensive pharmaceutical promotional items may influence subconscious attitudes towards branded medicines.

Action

Prescribers should not underestimate the potential for limited pharmaceutical promotion to influence their prescribing habits.

Study details

This study was a randomised controlled experiment in US medical students. It measured the influence of exposure to small, inexpensive branded promotional items on the relative attitudes of the students towards two statins, Lipitor® (atorvastatin) and Zocor® (simvastatin). Third- and fourth-year students (n=352) from two universities with differing policies on interacting with the industry and accepting gifts were included. Results suggested that subtle exposure to small, inexpensive pharmaceutical promotional items influenced implicit (i.e. subconscious) attitudes towards branded medicines. No significant effect was seen on explicit (i.e. self-reported) attitudes towards branded medicines.

Even though there are limitations to this study, and it was only carried out in medical students, prescribers should not underestimate the potential for limited pharmaceutical promotion to influence their prescribing habits. Health professionals should continue to follow current guidance from respected UK bodies, such as that in the GMC Guide to Good Practice 2006, the MHRA's Blue Guide (section 6.14) on advertising and promotion of medicines in the UK, and the Quick Guide to the Code for Health Professionals from the PMCPA. These reflect the ABPI code of practice for the pharmaceutical industry and include guidance on conflicts of interest and acceptance of gifts, inducements and other benefits from the pharmaceutical industry.

For more details of the study see *MeReC Rapid Review Blog No. 466*.

Reference

1. Grande D, Frosch DL, Perkins AW, et al. Effect of exposure to small pharmaceutical promotional items on treatment preferences. *Arch Intern Med* 2009;169:887–93

Inadequate sample size calculation and reporting in clinical trials

A review¹ of publications of randomised controlled trials (RCTs) found that only a third adequately described the sample size calculations. Without these, it is not possible to assess whether the methods used to show differences between treatments are statistically valid.

Action

Healthcare professionals need to be vigilant about claims from RCTs, which may not necessarily be based on sound statistical principles, and may be potentially misleading.

Study details

The review considered 215 reports of RCTs (clinical superiority trials) published during

2005 and 2006 in six general medical journals with high impact factors. Only 73 publications (34%) adequately described sample size calculations, i.e. they provided enough data with which to recalculate sample size, the sample size calculation was accurate, and used accurate assumptions in the control group.

This publication was correct at the time of preparation:
October 2009

This study raises concerns about the statistical validity of many clinical studies and suitability of the peer-review process prior to publication of these trials in medical journals.

For more details of the study see *MeReC Rapid Review Blog No. 450*.

Reference

1. Charles P, Giraudeau B, Dechartres A, et al. Reporting of sample size calculation in randomised controlled trials: review. *BMJ* 2009;338:b1732

Press releases may not reflect the limited clinical relevance and usefulness of research

A review¹ found that academic centre press releases often overstate the importance of the findings of their own research, while underemphasising cautions and limitations of extrapolating the research findings to clinical care.

Action

Journalists and health professionals should be aware that press releases and news articles about studies can be misleading and these should not be used as a means of informing treatment decisions.

Study details

The researchers reviewed 200 press releases issued from 20 US academic centres. Forty-four percent of press releases promoted the results of animal and laboratory research and 56% promoted the results of human research. Twenty-nine percent of press releases were considered to exaggerate the importance of the study's findings. Of the press releases about human studies, only 17% concerned RCTs or meta-analyses. Overall, 40% reported studies of limited quality, e.g. sample size less than 30; uncontrolled interventions; primary surrogate

outcomes; or unpublished data. More than half of these (58%) lacked the relevant cautions about the study limitations or relevance to clinical practice. The majority of animal or laboratory studies (74%) claimed relevance to human health, yet 90% lacked caveats about extrapolating results to people.

The study did not directly assess the effects of press release quality on subsequent news coverage. However, health news stories that use press releases as the main source of information should be considered unreliable.

For more information on this study see *MeReC Stop Press Blog No. 361*.

References

1. Woloshin S, Schwartz LM, Casella SL, et al. Press releases by academic medical centers: not so academic? *Ann Intern Med* 2009;150:613–8

Beware citation bias

A recent study¹ identified how citations made in the biomedical literature may selectively report work that does not represent the spectrum of available evidence. Worryingly, these are often used to establish authority for unfounded scientific claims.

Action

Healthcare professionals need to be aware of these newly reported forms of bias in which citations can be used selectively to support possibly unfounded claims.

Study details

A complete citations network was constructed of 242 articles (675 citations) addressing the belief that beta-amyloid is produced by and injures skeletal muscle fibres in sporadic inclusion body myositis. Citations were often used in a distorted manner for persuasion and used to establish unfounded scientific claims as

fact. For example, papers supporting authors' views were frequently cited, whereas this was rare for papers that refuted or weakened claims. This systematic ignoring of papers that contain content conflicting with a claim is an example of citation bias.

For more information on this study, including the many other ways that citations were found to distort claims, see *MeReC Rapid Review Blog No. 474*.

References

1. Greenberg SA. How citation distortions create unfounded authority: analysis of a citation network. *BMJ* 2009;339:b2680

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