BOOK REVIEW

Pharmacogenomics: Social, Ethical, and Clinical Dimensions

Edited by M A Rothstein. John Wiley & sons, 2003, £41.95, pp 384. ISBN 0471227692

In this interesting and stimulating collection, Mark Rothstein has brought together authors from a number of different disciplines (including bioethics, law, pharmacy, genetics, and regulatory science) to explore some of the issues surrounding pharmacogenomics: the use of genetic testing to design new drugs, and to prescribe more effectively the drugs we already have. Pharmacogenomics is an area of fevered speculation on the part of biotechnology firms and large pharmaceutical companies. Their hope is that by targeting drugs at specific populations, industry will be able to develop new products more quickly, more cheaply, and with less risk of marketing something that actually kills the patient. An often cited study by Lazarou, Pomeranz, and Corey suggests that adverse drug reactions are between the fourth and the sixth biggest causes of death in US hospitals.¹

As someone very familiar with the scientific and ethical literature on pharmacogenomics, I did find that a number of chapters in this collection simply rehearsed arguments that have been made elsewhere, sometimes by the same authors. Rather than seeing these as “fillers”, however, I think it is better to regard them as providing a sound introduction to the current state of the debate. Unsurprisingly, the best chapters in this book are those in which the contributor’s brief requires him or her to do something original. David Brushwood’s chapter on “The challenges of pharmacogenomics for pharmacy education, practice and regulation”—for example, provides a fascinating insight into the way in which this technology might impact on a specific profession, as well as “opening up” the normally opaque world of the medical pharmacist.

Similarly, Rothstein himself makes a real contribution in his chapter, co-authored with Carlton Young, which presents the results of the “first comprehensive public survey on pharmacogenomics” (p 3). This survey highlights not only the public’s interest in pharmacogenomic research and its willingness to participate in it, but also its continued

concerns over who gets access to its genetic data. With pharmacogenomics proposed as one of the reasons behind the setting up of the Wellcome Trust/MRC UK Biobank, public understanding of and attitudes toward pharmacogenomics will play an important role in helping decide support for this and other DNA banking initiatives. Other valuable contributions include Larry Palmer on “Medical liability for pharmacogenomics” and Nunnally, Brown, and Cohen’s surprisingly interesting (given the tedious way the topic is normally dealt with) “Intellectual property and commercial aspects of pharmacogenomics”.

In general the literature on pharmacogenomics is characterised by a lack of critical edge regarding the likelihood of the technology ever becoming widespread and clinically practical. Although the general tone of this collection shares elements of this point of view, the inclusion of Neil Holtzman’s chapter goes a long way toward balancing this out. In his careful, step by step, dissection of the literature, Holtzman shows how hardly any of the examples of pharmacogenomics cited in the literature involve tests with high enough predictive values to make them of any use in the clinical setting. He also emphasises the need for pharmacogenomic testing to conform to the same standards of confidentiality as “traditional” genetic tests, a position normally resisted in most scientific discussion in this area.

The strength of this edited collection is also one of its limitations. Rothstein has assembled a knowledgeable and articulate range of contributors, with whose work he is obviously familiar. As a result, this collection is extremely US centred, in terms of legal debates, healthcare issues, and even ethical problems. This is not a criticism. I would rather a book like this than a turgid, committee led tome, where authors’ roles are not clearly marked out and repetition sets in. There is, however, clearly still a need for a complementary volume exploring the possible impact of pharmacogenomics on more publicly based healthcare systems.

One result of the book’s US focus is the emphasis placed on the problems raised for pharmacogenomics by issues of race. Although authors in this collection repeat the mantra that racial categories are social constructs, and that on average there is more genetic difference between members of the same ethnic grouping than between members of different groups, it appears that there may

be some pharmacogenomic reactions that do arise from ethnic differences. The most obvious example of this is the drug BiDil, which is being developed to treat heart failure in African-Americans. Since this group seems to have a much lower response rate to the most common drugs for this condition, angiotensin-converting enzyme (ACE) inhibitors, and higher rates of heart disease than the white population, the drug seems to fill an important niche. Yet at the same time, many doctors and scientists are uneasy about the dangers of “racial profiling” and the possibility of biologically reifying racial categories.

This collection provides in depth coverage of these issues, with four chapters (out of fifteen) either wholly or largely devoted to exploring various aspects of this debate. Yet although there is little or no overlap between the different contributions, one cannot help but feel a little perplexed as to why there is such a focus on these issues, and not on other, equally pressing, social problems, which may arise from pharmacogenomics—for example, around confidentiality. It is, I feel, a cultural thing. Given that, as Henry Greely states in his chapter: “Slavery, and racism...are America’s original sin” (p 80), and bearing in mind the huge ethnic disparities in US health care presented in Laurie Nsiah-Jefferson’s sobering contribution, perhaps it is unreasonable to ask US based bioethicists *not* to focus on the racial misuse of pharmacogenomics. Whether these issues will become a problem for other countries remains to be seen. Although no one could deny the existence of racism in the UK, in the realm of healthcare provision at least, we might hope that the (still, just) publicly funded National Health Service (NHS) will go some way toward ameliorating the possible problems arising out of pharmacogenomics.

Overall, this book provides a welcome addition to the literature on the ethics of genetic technologies, and as the first book focused on the ethics of pharmacogenomics, it sets a high standard for those that come afterward.

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References

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