Electronic Fetal Heart Rate Monitoring

To Gillian and Eleanor

Electronic Fetal Heart Rate Monitoring

A Practical Guide

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Softcover reprint of the hardcover 1st edition 1989 978-0-333-47117-3

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First published 1989 by
THE MACMILLAN PRESS LTD
Houndmills, Basingstoke, Hampshire RG21 2XS
and London
Companies and representatives
throughout the world

ISBN 978-0-333-47118-0

ISBN 978-1-349-19875-7 (eBook)

DOI 10.1007/978-1-349-19875-7

A catalogue record for this book is available
from the British Library.

Reprinted 1993

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Foreword

'The fetal heart just stopped.' This was often the conclusion reached when intermittent auscultation of the fetal heart during labour was the only way to assess fetal well-being. It occurred apparently without warning and with often nothing to suggest a sudden accident such as abruption of the placenta or prolapse of the cord.

The ability to record the fetal heart rate continuously gave the obstetrician the opportunity to appreciate that in the majority of instances the fetal heart does not suddenly stop, but that warning signs are present in the pattern of the fetal heart rate before fetal death. Since anoxia is the basic problem, it was also anticipated that not only could intrauterine deaths be avoided, but also the birth of severely asphyxiated babies.

Whether or not the results have lived up to the expectations of the new innovation is open to question. Its use has certainly led to a greater incidence of operative deliveries, but unfortunately without a corresponding decrease in the numbers of perinatal deaths related to anoxia.

What is clear now is that the value of continuous fetal heart recording depends on three separate factors, and unless they are all satisfactory, the exercise is worse than useless. Too many errors have been made by misinterpretation of good records or by attempting to interpret bad traces.

Firstly, the machine used must be of good quality. There is no point in using a machine that, due to age or for other technical reasons, gives a poor record.

Secondly, the person in charge of the investigation must be aware of what is required and should not leave a trace to sort itself out. Twenty minutes' continuous attendance on the patient may save time in the long run by achieving a meaningful result. It must also be recognised that in the very stout patient the exercise may be difficult and unsatisfactory, and for this reason impractical.

Finally, the person interpreting the trace must understand what

is of significance in a recording and what is not. It is as important to recognise normality as abnormality and to know the pitfalls in diagnosis.

It is for those who need to interpret fetal cardiotocography that this book is written. Such a practical guide is the summation of the experience of two obstetricians in daily contact with clinical situations over several years, who have had the advantage of studying the fetal outcome, following decisions made on fetal cardiotocography both antenatally and in labour.

Although the book is intended for the houseman and midwife, anyone who practises obstetrics would find the time spent browsing through it well worth while. It should help to obviate errors in the interpretation of continuous fetal cardiotocographs, which can not only bring the technique into disrepute, but also lead to mistakes in clinical management.

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Preface

Electronic fetal monitoring is commonly and often routinely used in many delivery suites. The newly appointed obstetric houseman is often asked to interpret changes in FHR patterns on the basis of little prior experience. This manual aims to provide an insight into normal cardiotocography, and, while the authors accept that the interpretation of abnormal traces is far from achieving a consensus view, we aim to alert at an early stage both junior hospital doctors and midwifery staff to cardiotocographic features that merit further action. It is not intended to advocate universal cardiotocography and it is important to realise that it may form only part of the overall evaluation of the fetus, both antenatally and intrapartum. Emphasis is given to the practical problems encountered rather than to the underlying theoretical considerations, which are amply covered in other reference texts.

The cardiotocographs chosen are therefore accompanied where relevant by appropriate pH values of scalp or umbilical artery blood, Apgar scores and fetal outcome. Important points are highlighted within individual boxes and bear relevance to the accompanying text. Advice is also given as to what basic measures should be taken in the presence of an abnormal trace.

The book is intended to fill a basic gap which is often encountered in the labour ward by inexperienced staff; we hope it will not only improve fetal outcome but also prevent unnecessary intervention.

Cardiotocography as such will be of value only if the human monitor supervising the electronic monitor has a basic understanding of its interpretation.

Leicester, 1988

P.L.W.
H.G.D.