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Opinion

Obstetric medicine, its premise and promise

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A recent issue of this Journal (April 2004) featured abstracts of research presented at the inaugural meeting of the International Society of Obstetric Medicine, held in October 2003 in Fremantle. The meeting was attended by obstetricians and physicians from all over the world, as the first international gathering devoted to the nascent specialty of 'Obstetric Medicine'. The reader may well query the need for yet another subspecialty. Do not the existing specialties of Internal Medicine and Obstetrics deal adequately with medical aspects of pregnancy, or was there a gap to be filled? Is the practice of medicine different in pregnancy and in what ways does it merit special attention?

Those familiar with the workings of a general hospital will be aware that the presentation of a pregnant patient evokes considerable anxiety in her medical attendants. First, there are difficulties in distinguishing normal from abnormal. Does the woman with breathlessness, tachycardia, oedema, raised jugular venous pressure and gallop rhythm have heart failure or embolism, or is she a normal pregnant woman? Does her leucocytosis, elevated erythrocyte sedimentation rate and reduced serum albumin indicate infection? Laboratory norms are altered substantially by pregnancy, and render the difficult process of making a diagnosis even more difficult. This is compounded by an understandable hesitancy to use imaging technology based on radiation, because of concern for the developing fetus. Nevertheless, there is good information regarding radiation exposure and a judgement balancing benefits and risks may be made for each proposed test.

Once a diagnosis is made, there are further difficulties. Drug prescribing raises many questions. The patient herself may be very reluctant to take medication. She has been primed by the media, well meaning relatives, and others to believe that many drugs carry the same implication as thalidomide for her developing baby. To counter misinformation that is prevalent in the lay literature, internet and other media sources requires a detailed knowledge of obstetric pharmacology, of the safety or otherwise of therapies considered for the pregnant patient. Drug absorption, distribution, metabolism and elimination may be altered considerably in pregnancy. In addition, there will be concerns with pharmacologic effects on the baby of maternal medication in late pregnancy, distinct from teratogenic effects in early pregnancy. The nursing mother will always need reassurance regarding the safety of her medication for her suckling child.

These few observations underscore the fact that pregnant women differ in many ways from non-pregnant. In biological terms, it could be said that there are three genders, male, female and pregnant. Anatomical changes are obvious while alterations in physiology, immunology, pathology, and indeed psychology deserve no less recognition.

Obstetric Medicine deals with medical disorders in pregnancy. These include not only pre-existing problems, but also a number of disorders unique to pregnancy such as pre-eclampsia, acute fatty liver, several dermatologic afflictions and gestational diabetes. The management of these medically complicated pregnancies is challenging for all concerned. The care of a woman with antiphospholipid syndrome provides a useful paradigm. In such cases the obstetric prognosis is bleak without anticoagulation and sometimes immunosuppression, as well as treatment of hypertension, renal disease and other issues that may complicate the situation.[1,2] Medical monitoring of such patients is complex, particularly when there is a coexisting autoimmune disease such as systemic lupus erythematosus (SLE), or when thrombosis has occurred in the past. The physician and the obstetrician work together, each applying expertise in an example of collaboration for the benefit of the patient and her baby.

The practice of Obstetric Medicine is not limited to the antenatal period. There is a role for the physician both before and after pregnancy. Preconception counselling provides an enormous benefit: cost ratio. The prototype is seen in diabetes. Assiduous attention to control of diabetes before pregnancy will reduce the risk of fetal abnormality.[3] An abnormal baby will bring considerable financial and personal costs to the family for the lifespan of that affected individual. Consultation before pregnancy may allow adjustments such that drug treatment is more suitable for pregnancy. In the instance of a woman taking warfarin for any reason, the chance of miscarriage and congenital abnormality is much increased[4] and largely avoidable by changing to low molecular weight heparin, or by appropriate contraceptive advice! It is often not recognised that the rate of miscarriage is

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increased and fertility decreased by active medical disease. Thus, a woman with uncontrolled thyrotoxicosis has an increased chance of fetal loss, as have women with active ulcerative colitis, poorly controlled diabetes and SLE.[5] Some of the thrombophilic disorders, now well characterised, seem to increase the risk of fetal loss throughout pregnancy, quite apart from their contribution to maternal thromboembolism.[6] In all of these instances, the chance of a favourable pregnancy outcome is increased by appropriate attention to medical aspects before embarking upon pregnancy.

These are examples of adverse effects of medical disease or its treatment on pregnancy outcome. The converse is no less true, namely that pregnancy may lead to destabilisation or loss of control of a medical disorder. Diabetes, for example, is often difficult to control during early pregnancy with hypoglycaemia a dangerous accompaniment of gestational nausea and anorexia. Also, while it may no longer be true that 'pregnancy drives another nail in the coffin of a woman with heart disease', the physiological alterations inherent in pregnancy certainly place added demands on the heart such that new or increased treatment may be required.[7] Moreover, pregnancy imposes constraints on treatment such as the prohibition against the use of angiotensin-converting enzyme inhibitors, related to their effects on the baby's renal function and blood pressure when used in the third trimester. Because of their unequivocal benefits in many cardiac and renal disorders, their withdrawal is an impediment to optimal management. Reflux nephropathy and some forms of nephritis[8,9] often deteriorate in pregnancy and epilepsy may worsen, either because the woman has ceased her medication, or because the dose of anticonvulsant has not been increased, as is frequently necessary during pregnancy.[10] For women with pulmonary hypertension, the risk of death or severe morbidity is very high in pregnancy, and treatment seems ineffective.[11,12] These women must be aware of the prognostic implications before conception so that an informed choice for or against pregnancy may be made.

In general, if conception occurs while the medical condition is active, the prognosis for both the pregnancy and the disease is worsened, while the chances of success are much higher if pregnancy is planned to coincide with a time of remission.

With regard to the first months of the puerperium, the new mother is particularly vulnerable. Whether because of immunologic or other biological variations, or simply because of exhaustion with the demands of the new baby, medical problems often appear or flare at this time. Rheumatologic ailments such as SLE and rheumatoid arthritis may have been quiescent throughout pregnancy, but tend to surge in activity in these months.[13] Postnatal recrudescence of Graves' disease and the appearance of thyroiditis are examples of the intimate relationship between thyroid disease and this susceptible period in a woman's life.

Prevention of vascular disease is primary in population health in the developed world. The obstetric physician will be aware of the long-term implications of certain medical complications of pregnancy, such as pre-eclampsia and gestational diabetes. In each case, pregnancy may be regarded as a 'stress test' that uncovers constitutional characteristics that predispose the woman to later medical problems. There is a very high rate of progression to diabetes in the years following gestational diabetes.[14] Lifestyle intervention has great value in delaying, if not preventing, diabetes in those at risk,[15] although there are no adequate studies in women after gestational diabetes. Similarly, the relative risk of ischaemic heart disease is increased many years after pregnancy complicated by pre-eclampsia.[16] These women have higher blood pressure and lipid levels than normal controls 6 months after pregnancy.[17] They require medical follow up after the delivery, with attention to vascular risk factors, aimed at preventing atherosclerosis and its complications.

There have been dramatic changes in Australia and similar cultures in the last 20 years, with regard to the age and weight of women embarking upon pregnancy. Pregnant women now are older than ever before[18] and weigh more. Concomitant with these changes has been an increase in the representation of medical problems in the pregnant population. In the 1970s, it was rare to see a pregnant woman of 40 with obesity, hypertension and diabetes. This is an every day observation now in antenatal clinics. These women need specialist medical and obstetric care as they have considerably increased risks of pre-eclampsia and the gestational complications of diabetes,[19] as well as being much more likely to suffer thromboembolism and obstetric complications.[20]

The major contributors to maternal mortality in the developed world are now medical and not obstetric.[21] Thus pulmonary embolism, cerebral events, cardiac disease, non-pelvic infections and medical complications of pre-eclampsia account for at least half of all maternal deaths in Australia and the UK.[22,23] Furthermore, there has been little decline in overall rates of maternal mortality over the last 20 years in this country, despite noteworthy falls in deaths due to haemorrhage, abortion and genital tract sepsis.

Thus, the medical complications of pregnant women deserve specific attention by way of clinical training of physicians and obstetricians, research, and appointment of physicians at maternity hospitals. Special interest training in Obstetric Medicine is being developed by the Royal Colleges in the UK (referred to there as 'Maternal Medicine'), and the Royal Australasian College of Physicians has a curriculum in Obstetric Medicine to direct those who wish to pursue an interest. The obstetric physician in Australia and New Zealand works very closely with specialists in Maternal Fetal Medicine in tertiary obstetric units. However, some training in Obstetric Medicine is also valuable for any physician who intends to practice where maternity services are available, particularly outside major cities, as asthma, hypertension, epilepsy, migraine and many other medical concerns often need specialist advice in pregnancy.

It has been estimated that there is a need for one physician for each 5000 deliveries.[24] This does not seem excessive given the considerable array of serious medical problems now seen in pregnant women, if we are to aim for optimal care. It has been 40 years since publication of the first text devoted exclusively to these problems.[25] Over that long gestation, a new specialty has evolved.

References

1 Munday DN, Jones WR. Pregnancy complicated by the antiphospholipid syndrome. *Aust NZ J Obstet Gynaecol.* 1993; **33**: 255–258.
2 Cowchock S. Treatment of antiphospholipid syndrome in pregnancy. *Lupus.* 1998; **7**: S95–S97.
3 Ray JG, O'Brien TE, Chan WS. Preconception care and the risk of congenital anomalies in the offspring of women with diabetes mellitus: a meta-analysis. *Q J Med.* 2001; **94**: 435–444.
4 Ginsberg JS, Greer I, Hirsh J. Use of antithrombotic agents during pregnancy. *Chest.* 2001; **119**: 122S–131S.
5 Lazarus JH, Kokandi A. Thyroid disease in relation to pregnancy: a decade of change. *Clin Endocrinol.* 2000; **53**: 265–278.
6 Kupferminc MJ, Eldor A, Steinman N *et al.* Increased frequency of genetic thrombophilia in women with complications of pregnancy. *N Engl J Med.* 1999; **340**: 9–13.
7 Siu SC, Sermer M, Colman JM *et al.* Prospective multicenter study of pregnancy outcomes in women with heart disease. *Circulation.* 2001; **104**: 515–521.
8 Kincaid-Smith P, Fairley KF. Renal disease in pregnancy. Three controversial areas: mesangial IgA nephropathy, focal glomerular sclerosis (focal and segmental hyalinosis and sclerosis), and reflux nephropathy. *Am J Kidney Dis*. 1987; **9**: 328–333.
9 North RA, Taylor RS, Gunn TR. Pregnancy outcome in women with reflux nephropathy and the inheritance of vesicoureteric reflux. *Aust NZ J Obstet Gynaecol.* 2000; **40**: 280–285.
10 Eller DP, Patterson CA, Webb GW. Maternal and fetal implications of anticonvulsive therapy during pregnancy. *Obstet Gynecol Clin North Am.* 1997; **24**: 523–534.
11 Weiss BM, Zemp L, Seifert B, Hess OM. Outcome of pulmonary vascular disease in pregnancy: a systematic overview from 1978 through 1996. *J Am Coll Cardiol.* 1998; **31**: 1650–1657.
12 Yentis SM, Steer PJ, Plaat F. Eisenmenger's syndrome in pregnancy; maternal and fetal mortality in the 1990s. *Br J Obstet Gynaecol.* 1998; **105**: 921–922.
13 Ostensen M. Sex hormones and pregnancy in rheumatoid arthritis and systemic lupus erythematosus. *Ann NY Acad Sci.* 1999; **876**: 131–143.
14 Henry OA, Beischer NA. Long-term implications of gestational diabetes for the mother. *Baillieres Clin Obstet Gynaecol.* 1991; **5**: 461–483.
15 Tuomilehto J, Lindstrom J, Eriksson JG *et al.* Prevention of type 2 diabetes mellitus by changes in lifestyle among subjects with impaired glucose tolerance. *N Engl J Med.* 2001; **344**: 1343–1350.
16 Smith GC, Pell JP, Walsh D. Pregnancy complications and maternal risk of ischaemic heart disease: a retrospective cohort study of 129 290 births. *Lancet.* 2001; **357**: 2002–2006.
17 Barden AE, Beilin LJ, Ritchie J, Walters B, Michael C. Does a predisposition to the metabolic syndrome sensitise women to develop pre-eclampsia? *J Hypertens.* 1999; **17**: 1307–1315.
18 Australia's Mothers and Babies 2000. Canberra: Australian Institute of Health and Welfare, National Perinatal Statistics Unit 2002.
19 Galtier-Dereure F, Boegner C, Bringer J. Obesity and pregnancy: complications and cost. *Am J Clin Nutr.* 2000; **71**: 1242S–8S.
20 Rosenberg TJ, Garbers S, Chavkin W, Chiasson MA. Prepregnancy weight and adverse perinatal outcomes in an ethnically diverse population. *Obstet Gynecol.* 2003; **102**: 1022–1027.
21 de Swiet M. Maternal mortality, a vindication of obstetric medicine. *J Obstet Gynaecol.* 2003; **23**: 535–539.
22 National Health and Medical Research Council and Australian Institute of Health and Welfare. *Report on Maternal Deaths in Australia, 1994–1996.* Canberra: National Health and Medical Research Council and Australian Institute of Health and Welfare, 2001.
23 Department of Health Welsh Office Scottish Home, Health Department, Department of Health, Social Services Northern Ireland. *Confidential Enquiries Into Maternal Deaths in the United Kingdom*. London: HMSO, 2001; 1997–1999.
24 Nelson-Piercy C, Peek MJ, de Swiet M. Obstetric physicians: are they needed? *J R Coll Physicians Lond.* 1996; **30**: 150–154.
25 Barnes CG. *Medical Disorders in Obstetric Practice*. London: Blackwell Scientific Publications, 1962.