A reflection on current obstetrics and gynaecology research in India

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EDITORIAL

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Introduction

Obstetrics and gynaecology, including topics such as contraception, antenatal care, and maternal and neonatal health, are an important part of medical practice. In recent years there have been many studies examining aspects of this healthcare sector in India. This editorial examines some of the recently published research from this field, and country, with the aim of highlighting the existence and variety of the investigations that have been published on this topic. It is hoped that the review of these works will allow researchers and clinicians in all countries to reflect on the value of parochial research that can focus healthcare intervention on areas that necessitate further promotion or examination.

Contraception

Attitudes and knowledge of both Indian medical staff and the general public to contraception have been reported in recent years. Rahaman and colleagues[1] concluded in their study of attitudes among Indian nursing staff that knowledge of Emergency Contraception (EC) appears to be inadequate, reflecting other research from different countries around the world. One hundred and thirty-one nursing staff participated in the survey, although 19 nurses (14 per cent) had never heard of EC and were thus excluded from the study. Research on adolescent Indian girls' knowledge about contraception has also been shown to be poor;[2] even though overall knowledge about contraceptive method was only 40.76 per cent, only 65.4 per cent were interested in acquiring further knowledge while the remainder had the belief that this type of education will increase adverse sexual practice. In other studies about contraceptive practices in India, Prateek and Saurabh[3] found that there is a great difference between the knowledge and actual use of contraceptives in married women in reproductive age: 52.4 per cent of women knew about contraceptive practices, but only 32.2 per cent of them were using any contraceptive method. Jain and Muralidhar[4] concluded that the preferred contraceptive practice is female sterilisation. In regard to the practice of sterilisation, Srividya and Kumar[5] performed a cross-sectional study on 399 women prior to tubectomy and found that most women (73.9 per cent) had not previously used any kind of contraception.

Teenage pregnancy

In an investigation of teenage pregnancy in India, Parasuramalu et al.[6] reported that most teenage mothers seen in primary health centres were married before the legal age of 18 years. In a four month hospital-based cohort study, Banerjee et al.[7] found that 24.2 per cent of pregnancies correspond to teenage pregnancies, and that this group had a greater prevalence of anaemia, preterm delivery and low birth weight than the control group (women of 20-24 years old).

Infant delivery

Unnikrishnan and colleagues[8] reported on Caesarean section (CS) rates in coastal South India. Their paper begins with the observation that there is a rising rate of CS in modern obstetric practice, and goes on to report a CS rate of 23.3 per cent for 2009 as compared to 20.2 per cent in 2005 with the major indication for this being previous CS. The authors considered this a vicious cycle that can only be stopped by reviewing the indications for CS. The reports of increasing rates of CS have also been described in other publications: reports indicate a trend in recent years for an increase from 10 per cent in the year 2000 to 15-25 per cent in 2006 outside India in Malaysia,[9] while Kambo et al.[10] described the rates for CS in India ranging from 24.4 per cent in medical colleges and teaching hospitals to 47 per cent in private sector hospitals. Saha et al.[11] compared deliveries in 2007 with those in 2008 under a new strategy

protocol for CS in a tertiary facility care centre, finding an incidence in the retrospective group of 29 per cent and in the prospective group of 18.4 per cent, providing a possible solution to halt the increasing CS prevalence, and determining a necessity to undertake further multicentric clinical trials to examine possible interventions for the increasing trend in CS.

Maternal health

In India, anaemia is the second most common cause of maternal death, accounting for 20 per cent of total maternal deaths. Ezzati et al.[12] established the prevalence of iron deficency anaemia between 33-89 per cent and the National Family Health Survey (2005-2006) and reported the incidence of anaemia in pregnancy in India is 54.6 per cent in urban centres and 59 per cent in rural areas. One particular study aimed to determine the prevalence of anaemia and to explore factors associated with anaemia in one rural Indian pregnant population from Maharashtra,[13] finding that of the 310 subjects who were enrolled, 232 (74.8 per cent) were found to be anaemic. The majority (50.9 per cent) demonstrated moderate anaemia while mild and severe anaemia were recorded in 70 (30.2 per cent) and 44 (18.9 per cent) respectively. A highly significant association was found with the mother's age, educational and socio-economic status, religion, parity and body mass index. As normocytic hypochromic and microcytic hypochromic blood pictures were predominant in this study, it indicates deficient iron intake/absorption irrespective of age, type of family, caste, religion or number of children as the prevalence was equally high in all groups in this population. A very high prevalence of anaemia (74.8 per cent) early in pregnancy is an indicator of the failure of national and the WHO is facilitating programmes to address this problem.

Anaemia during pregnancy can be alleviated, however, by iron supplementation - though until recently there was a paucity of up-to-date research investigating the level of adherence for such supplementation in distinct Indian populations. Bilimale et al.[14] examined the adherence to iron supplementation during pregnancy in a rural population. Remarkably all aspects of the diet were considered inadequate in the study population. Forty to fifty per cent of women remained anaemic throughout the study regardless of the study group to which they had been allocated in the randomised trial. Interestingly, those who received the simple intervention of being observed taking their medication were more likely to be compliant with iron supplementation.

The management of patients with common complications of pregnancy received attention from Roy et al.[15] in their review of treatment with magnesium sulphate compared to phenytoin in eclampsia. In a randomised trial 80 women with eclampsia were randomised to receive either magnesium sulphate or phenytoin. The time taken for return to consciousness was significantly earlier and patients delivered sooner in the phenytoin group compared to those in the magnesium sulphate group, suggesting that phenytoin is better than magnesium sulphate in the bed-turnover rate of eclampsia patients from the labour room eclampsia-turret to the post-partum ward. The authors conclude that in low and middle income countries, where there is a high incidence of eclampsia and labour rooms are overflowing with such critical patients, the concept of having earlier delivery, decreased number of Caesarean deliveries, increased bed turn-over (from the eclampsia turret to the labour ward), and lower cost of therapy with phenytoin appear to have practical implications. According to Arora et al.[16] pre-eclampsia and eclampsia are present in 4.6 per cent of all deliveries, with a neonatal mortality rate of 43 per 1000 live births in India. A retrospective study from Guin et al.[17] analysed all maternal deaths between January 2001 and December 2009, dividing data in two phases: before and after the implementation of the Janani Suraksha Yojana, which is a financial incentive to all women delivering in government hospitals. The first phase ran from 2001 to 2005 and the second phase between 2006 and 2009. In the first phase, eclampsia and pre-eclampsia were responsible for 31.4 per cent of the 172 maternal deaths, and in the second phase both accounted for 41.3 per cent of the 341 maternal deaths. Further to this research, and in an attempt to provide information on a suitable intervention for eclampsia, Chaturvedi et al.[18] examined the availability and use of magnesium sulphate for the treatment of eclampsia in the public health system in Maharashtra, India. They found that private care providers used magnesium sulphate in eclampsia, while the public care providers did not routinely use of it because of a fear of complications.

Infectious diseases in antenatal care has also been examined and reported on. Once such study aimed to investigate the incidence of infectious disease was the focus of a report from rural Maharashtra.[19] Kwatra et al.[19] reported a retrospective analysis of data on the utilisation of Integrated Counselling and Training Centre (ICTC) services by pregnant women at a tertiary care hospital. From over 12,000 pregnant women attending the antenatal clinic, 10,491 (82.5 per cent) accepted pre-test counselling and HIV testing. One hundred and forty-five women were found to be seropositive with a seroprevalence rate of 1.4 per cent; 11 per cent did not come for collection of the

laboratory report and missed the post-test counselling. Most of the seropositive women were from rural areas, had low socioeconomic status, did not have a formal education, and were unaware of their serostatus and their husband's risk behaviour. Less than one in three women were using some form of contraception. After registration, the majority of seropositive women (89.7 per cent) attended the antenatal clinic regularly; 11 per cent opted for pregnancy termination; 76 per cent delivered vaginally and 12 per cent underwent CS. A further 86 per cent of women and 80 per cent of newborns received Nevirapine prophylaxis; postnatal follow-up of babies was very limited. Results indicated that HIV seroprevalence among the pregnant population is declining steadily, and the authors were encouraged that a growing proportion of women are attending the facilities of ICTC centres. Other research has found that the seroprevalence of HIV was 0.41, 0.63, 0.67 and 0.76 per cent in 2004, 2005, 2006 and 2007 respectively in a tertiary care centre.[20]

Rare pregnancy

Rare obstetric cases have also been topical in the research literature in recent years. Case reports on the rare and potentially life-threatening ovarian pregnancy were reported by Roy and Sinha Babu.[21] This form of pregnancy is a rare event constituting one to three per cent of all ectopic pregnancies, with primary ovarian pregnancy having a better outcome than secondary ovarian or tubal ectopic pregnancy. This study reinforced the position that a high index of suspicion is required for diagnosis to avoid a crisis situation in the ward or operation theatre. Two cases of ovarian pregnancy – one primary and one secondary – were reported as having occurred in the same patient within a six-month period. The authors concluded that unlike tubal ectopic and secondary ovarian pregnancies, patients with primary ovarian pregnancy are likely to experience success in future intra-uterine conception and negligible risk.

Other types of pregnancy have also come under scrutiny. A prospective study by Mahji et al.[22] analysed 180 cases of ectopic pregnancy between 2002-2004, and during this period the incidence of this pathology was one in 161 (0.6 per cent). The risk factors for ectopic pregnancy include infections (pelvic inflammatory disease, *Chlamydia trachomatis*), tubal surgery, smoking, induced conception cycle and endometriosis. The incidence is higher in women who had received ovulation induction.[23]

Neonatal health

Bhardwaj and colleagues reported on a rare case of neonatal varicella,[24] where the mother had skin lesions at the time of delivery and the neonate contracted the disease during the perinatal period and developed clinical disease on day five post-partum. Specific anti-viral therapy was given to the mother and the baby and the recovery was uneventful. Neonatal varicella can be a consequence of maternal varicella during the last three weeks of pregnancy, and if it occurs near term or soon after delivery can be potentially fatal.[25] In an investigation to determine rates of neonatal varicella incidence in India, Tarang and Anupam[26] reported one case of neonatal varicella from 44 neonates with vesicobullous lesions in Departments of Dermatology and Paediatrics in the Muzaffarnagar Medical College and Hospital between 2008-2009. Although the incidence of this disease is seemingly low, these cases do serve to remind clinicians of its presence in India.

Deformities at birth have also received attention in research publications. Pandy et al.[27] described a case of abdomino-thoracopagus twins with single heart. The male twins were delivered in the 15th week of gestation following the desire of the parents to terminate pregnancy. This case was considered of particular interest because of the rarity of the abdomino-thoracopagus male twins with a single heart. Other cases include reports from Asaranti et al.[28] who described an autopsy of conjoined twins who shared heart, liver and part of digestive system, and the report of Fishman et al.[29] who describe the separation of thoracopagus conjoined twins with a single heart, and Gerlis et al.[30] who made a review of 36 pairs of conjoined twins, one being a case of single heart.

Conclusion

Research on the topic of obstetric and gynaecology practice in India is seemingly in good health. Recent investigations demonstrate a wide range of topics that include research into contraception attitudes and the importance of antenatal care to rare obstetric cases. Maternal morbidity and mortality, data on Caesarean section prevalence, the prevalence of neonatal disease, adherence of treatment in the case of anaemia, and the treatment in eclampsia are also prevalent. Perhaps of interest and importance is that investigations include both rural and urban populations, providing a balanced perspective from which to explore trends in obstetric and gynaecological care and intervention in India. Given the recent volume of such articles, it is perhaps worth considering how this research can be used to facilitate change in the medical practice in India to affects health outcomes. By reflecting on this, and perhaps taking the results of the research back to the populations of interest, the research will become truly translational - from bedside, to bench top, to bedside once more - and provide the ability for India to facilitate ongoing improvements in obstetric and gynaecological healthcare in India.

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CONFLICTS OF INTEREST

John Cornwall is the Deputy Editor of the AMJ.