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Obstetric performance following an induced abortion

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Abortion has been legalised in most of the Western world for the past four decades. In areas where abortion practices are legal and easy to access, the risk of short-term complications is very low. As most women requesting induced abortion (IA) are young, potential adverse effects on subsequent reproductive function are important to them. This review investigates obstetric performance following IA and highlights methodological problems associated with research in this area. Some data suggest that IA may be linked with an increased risk of low birth weight, miscarriage and placenta previa but could be protective for pre-eclampsia. Current evidence also suggests an association between IA and pre-term birth. Large prospective cohort studies, which permit meaningful subgroup analyses, are needed to provide definitive answers on outcomes following alternative methods of IA and the impact of gestational age at abortion on future obstetric outcomes.

Abortion has been legalised in most of the Western world since the late 1960s and early 1970s. Where abortion is legal and easily accessed, short-term complications are few, although this risk increases with advancing gestation. Currently, the World Health Organization estimates that 46 million

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(22%) out of a total of 211 million pregnancies are terminated each year, most of them (83%) in developing countries. However, at 26 and 29 abortions per 1000 women of reproductive age in developed and developing countries, respectively, a woman's chance of having an induced abortion (IA) is independent of her country of domicile.[1]

Traditionally performed surgically by suction aspiration or dilatation and evacuation (D&E), increasing numbers of IAs are now being carried out medically with the use of drugs such as mifepristone and misoprostol.[2] In Europe, between 1980 and 1995, >90% of abortions were surgical.[3,4] Since the early 1990s, the frequency of medical abortion has grown from 14% (1990) to 56% (2002) in France,[3] from 3% (1999) to 30% (2003) in Finland,[5] from 2% (1990) to 12% (2005) in the USA,[6] from 9% (1995) to 38% (2008) in England and Wales[7] and from 16% (1992) to 65% (2008) in Scotland.[8] Despite the limited body of published research on this subject, available data[9] suggest that major complications are relatively uncommon in the developed world.

Over a quarter of Scottish women who undergo an IA are 20 years or younger and 56% are under 24.[8] In England and Wales,[7] these figures are 28% and 52%, respectively. Worldwide, more than 60% of all cases of IA occur in women who are 24 years of age or younger.[8,10] As most women requesting IA are young, any potential effects of IA on subsequent reproductive function are important to them and those who care for them. Given the very large number of abortions carried out every year, even a very small increase in risk of an adverse outcome could have significant public health implications. This review investigates obstetric performance following IA.

Methods of literature review

The electronic databases Medline (1966–2009) and Embase (1980–2009) were searched using the following terms: induced abortion, medical abortion, surgical abortion, abortion complications, miscarriage, placenta previa, placenta abruption, abruptio placenta, ectopic pregnancy, pre-eclampsia, pre-term birth, low birth weight. All the above terms were too imprecise on their own, so a logical combination of the terms using the 'and' operator were used.

Inclusion and exclusion criteria were agreed *a priori*. We included studies which were able to differentiate between spontaneous miscarriage and induced terminations, possessed a sample size >100 participants, were conducted in countries where IA was legal and compared the effects of IA on future reproduction using a suitable comparison group. The search was limited to publications in the English language.

Both primary studies and systematic reviews were included. Where relevant, review findings are presented. To avoid any duplication, results of individual papers published after relevant reviews have been presented separately.

Results

Types of studies

Seven relevant systematic reviews (including four meta-analyses) and 18 primary studies were identified. The following information was abstracted from reviews: the number of included studies, outcomes and conclusions of the reviewers. Information abstracted from primary studies included: number of subjects, method of IA assessment, IA procedure type, study design, type of control group, confounding variables controlled for and the study findings (Tables 1–8). Where appropriate, odds ratios (ORs) with 95% confidence intervals are presented in Tables 1–8.

Five of the seven systematic reviews described the study designs of the included primary research papers, which included 59 cohort and 52 case-control studies. In their review of the literature, the Royal College of Obstetricians and Gynaecologists (RCOG)[2] focussed on one particular review[11] along with 14 other studies. Details of study design were only mentioned for six studies (four cohorts and two case-control studies) published after 2000. The Atrash and Hogue review[12] did not provide any information of study design; its aim was to examine previous reviews and update their findings using data from new studies. The 18 papers in this review included one prospective and 12 retrospective cohort studies and five case-control studies.