

Original research article

Early medical abortion without prior ultrasound[☆]

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Abstract

Objective: To explore the potential for using last menstrual period (LMP) rather than ultrasound to establish gestational age (GA) eligibility for medical abortion.

Study design: We used the results of a recently published systematic review to identify studies with data on the number of abortion patients with GA more than 63 or 70 days by ultrasound but less than those or other specific limits by LMP. We analyzed data from these studies to estimate the proportion of women with GAs greater than 63 or 70 days by ultrasound in various subgroups of women defined by LMP.

Results: We found three studies with relevant data. One enrolled 4257 medical abortion patients of whom 4% had GAs of >70 days by ultrasound. Of the 2681 who were certain that their LMPs began no more than 56 days prior, only 16 (0.6%) were >70 days by ultrasound. In a second much smaller study of surgical abortion patients, of whom 19% were >70 days by ultrasound, 90 women were certain that their LMPs started more than 56 days prior, and of those, 7 (7.8%) had GAs of >70 days by ultrasound. In the third study, which included surgical abortion patients with a mean GA of 61 days, at least 12% of the 138 patients with LMPs <63 days prior were >70 days by ultrasound.

Conclusion: The possibility that access to medical abortion can be enhanced for selected women by omitting the requirement for a screening ultrasound is promising and should be further investigated.

Implications: Gestational dating using LMP rather than ultrasound may be reasonable for selected patients before medical abortion.

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1. Introduction

A recently published systematic review concluded that use of ultrasound to determine gestational age (GA) before medical abortion may not always be necessary; women's reports of last menstrual period (LMP) alone may be sufficient [1]. In support of this conclusion, the authors cited two studies that found that if medical abortion had been provided to all women who reported LMPs beginning within the prior 63 days, a commonly used limit for outpatient treatment, only 3.3% [2] and 7.2% [3] of all patients seeking abortion would have received the drugs at GAs above that limit as assessed by ultrasound.

A policy that allowed as many as 7% of patients to receive outpatient medical abortion treatment despite a true GA of

>63 days may seem daunting to many providers. However, recent data have indicated that medical abortion may be safe and effective through at least 70 days of gestation [4–6]; indeed, in 2014, both Planned Parenthood Federation of America and the National Abortion Federation updated their clinical policy guidelines to endorse this higher eligibility limit [7]. Therefore, we reevaluated the available data to assess the utility of LMP alone for excluding pregnancies with durations of more than 70 days. In addition, we sought to determine whether restricting the LMP-based cutoff to 56 days could reduce the risk of missing women ineligible for medical abortion.

2. Methods

We examined the publications of the five studies included in the previously cited review [1] and their reference lists to identify studies with data on the number of patients presenting for abortion with GAs of more than 63 or 70 days by ultrasound but less than those or other specific

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limits by LMP. We contacted the investigators of all identified trials to request original data. Such data were available for only one trial, which had been conducted by our organization [2]; for the others, we relied on published data. We calculated the proportion of women in each identified study who, if GA eligibility had been determined solely using various LMP-based criteria, might have received medical abortion at GAs of >63 and >70 days of gestation by ultrasound dating. Whereas the authors of the review [1] included all abortion patients in the denominators for these proportions, we included only those with LMP-based GA estimates below the eligibility limit, as they are the group who would forgo ultrasound under the contemplated change in practice.

3. Results

Of the five studies included in the cited review, three offered no data applicable to our research question: one excluded women with GA >63 days by ultrasound [8], one did not record GA by ultrasound [9], and one reported results using an ultrasound cutoff of 56 days rather than 63 or 70 days [10]. We included the other two studies, which we will refer to as Bracken [2] and McGalliard [3], in our analysis. We identified a third study, which we will refer to as Ellertson [11], that had been excluded from the review because only about half of the total study population had a preabortion ultrasound (D. Schonberg, personal communication). However, one clinic in this study, located in Atlanta, used ultrasound to assess the GAs of 99.5% of the patients (i.e., 200/201), and therefore, we included the data from this clinic in our analysis.

The three included studies were conducted between 1997 and 2007 (Table 1). The Ellertson and McGalliard studies enrolled women presenting for surgical abortion at single sites in the United States and the United Kingdom, respectively. The Bracken study, which was an order of magnitude larger, included women presenting for medical abortion at 10 clinics across the United States. In all three studies, patients were invited to enroll before undergoing ultrasound at the study clinic. The women in the Ellertson and McGalliard studies had a wide range of GAs as assessed by ultrasound: in the Ellertson study, 33% of the 201 patients were >63 days, and in the McGalliard study, the mean GA of the 262 patients was 61 days. In the Bracken study, 181 of the 4257 patients (4.3%) were >63 days of gestation by ultrasound.

Of women with LMPs within the prior 63 days, the proportion with GAs >63 days by ultrasound was 3.5% in the Bracken study, whereas it was substantially higher in the Ellertson and McGalliard studies — 12% and 14%, respectively (Table 1). In the Ellertson and Bracken studies, at least half of the ultrasound-based GAs of >63 days were ≤70 days; thus, the proportions of women with GAs of <63 days by LMP who had GAs of >70 days by ultrasound were 1.2% in the Bracken study and 7% in the Ellertson study.

Of women with LMPs within the prior 56 days and of women who were uncertain of their LMP dates, the proportion with a GA of >70 days by ultrasound was even lower. In the Bracken study, women who were certain that their LMPs began no more than 56 days prior to presentation for abortion constituted 63% of the full study population; of these women, only 0.6 had GAs of >70 days by ultrasound. The corresponding proportion in the Ellertson study was 7.8%. Of women with GAs >70 days by ultrasound, the proportion with certain LMPs >56 days prior was similar in

Table 1
Published data on accuracy of GA estimation from LMP alone.

	Ellertson et al. [11]	McGalliard et al. [3]	Bracken et al. [2]
Location	United States (Atlanta clinic only)	United Kingdom	United States
Data collection dates	1997–1998	2001–2002	2005–2007
Population	Outpatient surgical abortion patients	Outpatient surgical abortion patients	Outpatient medical abortion patients
<i>N</i> with LMP and ultrasound	201	237	4257
<i>n</i> (%) ≤63 days by ultrasound	135 (67%)		4076 (96%)
<i>n</i> (%) ≤70 days by ultrasound	162 (81%)		4185 (98%)
<i>N</i> ≤63 days by LMP	129	138	4100
<i>n</i> (%) >63 days by ultrasound	18 (14%)	17 (12% ^a)	142 (3.5%)
<i>n</i> (%) >70 days by ultrasound	9 (7.0%)		51 (1.2%)
<i>N</i> ≤63 days by “certain” LMP	115		2962
<i>n</i> (%) >63 days by ultrasound	15 (13%)		76 (2.6%)
<i>n</i> (%) >70 days by ultrasound	8 (7.0%)		26 (0.9%)
<i>N</i> ≤56 days by LMP	97		3660
<i>n</i> (%) >63 days by ultrasound	10 (10%)		84 (2.3%)
<i>n</i> (%) >70 days by ultrasound	7 (7.2%)		34 (0.9%)
<i>N</i> ≤56 days by “certain” LMP	90		2681
<i>n</i> (%) >63 days by ultrasound	10 (11%)		39 (1.5%)
<i>n</i> (%) >70 days by ultrasound	7 (7.8%)		16 (0.60%)

^a The publication indicates a proportion of 19%. Correspondence with the author was unable to resolve the discrepancy.

the two studies: 56/72 (78%) in the Bracken study [2] and 32/39 (78%) in the Ellertson study [11].

4. Discussion

Our analysis of data from a recent study of more than 4200 medical abortion patients conducted at 10 clinics in the United States in the past decade suggests that, in selected women, confirmation that GA is no more than 63 or 70 days of gestation can be effectively obtained by history alone [2]. In particular, if medical abortion without screening ultrasound had been offered to all patients who reported a certain LMP no more than 8 weeks (56 days) prior to presentation, nearly two thirds could have avoided this test, and only 1.5% would have been exposed to risks associated with medical abortion after 63 days of gestation. An even smaller proportion — 0.6% — had GAs of more than 70 days.

Two earlier studies were less encouraging [3,11]. These studies were substantially smaller, and one was conducted nearly 20 years ago. Neither included any women seeking medical abortion, and notably, both included large proportions of women with advanced gestations. In that regard, these study populations were thus not representative of contemporary medical abortion populations in the United States, which are predominantly composed of women presenting early in the first trimester [2,12].

Providing outpatient medical abortion regimens unintentionally to women who are beyond the established GA limit could have adverse consequences. The drugs may fail, necessitating additional treatment or other intervention at a later time, when risks are higher. Or, possibly more seriously, the treatment could be effective, resulting in expulsion of a fetus more developed than expected. Such an event could be both emotionally and physically traumatic, especially if it occurred at home. If desired, further reassurance of GA could be obtained without ultrasound by simple procedures such as abdominal palpation or pelvic examination to rule out advanced gestations or quantitative serum or urine human chorionic gonadotropin testing to document a low value indicating early pregnancy. The latter was recently used in a small study of medical abortion by telemedicine in Canada, with no adverse outcomes [13].

Given the potential benefits of omitting the screening ultrasound in decreasing the cost of abortion, enhancing comfort and efficiency, and ultimately increasing access to the service, we suggest that a concerted research effort to investigate this promising approach should be a priority.

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