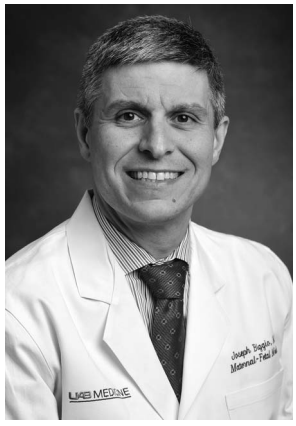
Bed Rest in Pregnancy

Time to Put the Issue to Rest



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In obstetrics, we often lack solid data upon which to base clinical recommendations for preventing pregnancy complications or for optimizing pregnancy outcomes after complications develop. Many proposed interventions for the prevention of adverse pregnancy outcomes have failed to demonstrate a salutary effect, and, for many of these complications, we remain empty-handed without evidence-based therapeutic alternatives. In these situations, our objectivity and knowledge tell us that no specific therapeutic intervention is capable of improving the natural history. However, it is often difficult to accept that there really is nothing more we can offer and to convince a patient and her family of the same. In some situations, faced with no proven options, physicians sometimes recommend bed rest. Our natural inclination is that doing something is better than doing nothing.

The origins of recommending bed rest for treatment of medical maladies dates to the time of Hippocrates, but it was in the latter half of the 19th century, after the publication of a series of lectures by Dr. John Hilton, a president of the Royal College of Surgeons, that the frequency of its use increased. Hilton taught that multiple ailments could be cured with prudent use of rest.[1] Although originally aimed at orthopedic disorders, this principle was applied in multiple fields with little question of its benefit for nearly 100 years. Bed rest as part of routine pregnancy care, especially in the postpartum period, has been practiced for hundreds of years, its commonality reflected in the nomenclature of "lying-in" hospitals and the term "date of confinement."[2]

Gradually, however, data accumulated regarding the adverse physical effects of prolonged bed rest, including muscle deconditioning, bone demineralization, cardiovascular deconditioning with loss of plasma volume, venous thrombosis, and alterations in the endocrine and immune systems. This led to changes in the use of bed rest for treatment of medical conditions such as myocardial infarction, pulmonary infections, and postoperative recovery.[2] Similarly, recommendations for prolonged bed rest during or after uncomplicated pregnancy dissipated. However, bed rest remains one of the most commonly prescribed treatments to improve reproductive outcomes in complicated pregnancies, despite a lack of evidence that it improves any obstetric or neonatal outcomes.[3]

As many as 95% of obstetricians report recommending activity restriction or bed rest, in some form, in their practices.[3] Nearly 20% of gravid women in the United States–approximately 800,000 per year–will be placed on bed rest between 20 weeks of gestation and delivery.[3–6] Seventy-one percent of maternal–fetal medicine specialists responding to a recent survey would recommend bed rest after arrested preterm labor, and 87% would recommend it after preterm premature rupture of membranes, despite the fact that 72% and 56% felt there was limited or no benefit to bed rest in the setting of preterm labor or preterm premature

See related articles on pages 1181 and 1305.

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rupture of membranes, respectively.[7] This perceived lack of benefit did not deter prescribing bed rest, because 85% of respondents failed to acknowledge any substantial risk to the mother or fetus.

Bed rest has a considerable emotional and social effect on the patient, her partner, and her family.[2] Moreover, the negative financial effect of activity restriction can be profound when one calculates the lost income and productivity. Goldenberg and colleagues estimate that the typical annual cost of bed rest in 1993 was $1.03 billion with conservative estimates but could be as high as $5.7 billion.[3] Adjusted to 2013 dollars, the cost ranges from nearly $2 billion to $7 billion per year.

Why do obstetricians continue to recommend activity restriction so commonly? The answer is likely multifaceted. Fear of being held responsible for a bad outcome if bed rest or some type of treatment is not recommended may be a driver.[3] Bed rest is misperceived as an inexpensive, innocuous, logical recommendation because it often is associated anecdotally with good outcomes in each physician's practice. A lack of quality evidence to sway long-standing clinical practice and an underappreciation of the physical, psychological, and financial effect on the patient, her family, and society are other contributing factors. Two articles in this issue of *Obstetrics & Gynecology* (see pages 1181 and 1305)[8,9] highlight the issues regarding recommendations for bed rest and activity restriction during pregnancy.

Grobman et al[8] examined the frequency of recommendations for activity restriction in nulliparous women found to have a cervical length less than 30 mm. Among these women, who were enrolled in a trial investigating the efficacy of 17-α hydroxyprogesterone caproate for the prevention of preterm birth in the setting of a short cervix,[10] nearly 40% had some form of activity restriction prescribed–pelvic rest, restriction in work activity, restriction in nonwork activity, or some combination thereof. Activity restriction was neither encouraged nor discouraged in the parent trial and was left to the discretion of the managing physician. After controlling for sociodemographic differences and ultrasound findings (including cervical length and funneling), the group for whom activity restriction was recommended was nearly 2.5 times more likely to have a preterm birth before 34 weeks. Thus, not only did activity restriction not appear to be beneficial in this group of nulliparous women with cervical shortening, but it may actually have been harmful. With the growing use of cervical-length screening in obstetric practice, these data warrant careful consideration. One argument against universal cervical-length screening is the potential for a dramatic increase in the number of women in whom cervical shortening is diagnosed. If the rate of activity restriction approached as seen in this study, up to 100,000 additional women each year in the United States could be subjected to the risks and costs of activity restriction (without any demonstrable benefit).

In the second article, McCall and colleagues[9] summarize data from multiple systematic reviews on the use of bed rest to treat various pregnancy complications. They emphasize that none found sufficient evidence to support the use of bed rest for treatment of pregnancy complications, but multiple studies document the physical, psychological, and financial harm with its use. Based on the lack of benefit and the demonstrated harm, the authors argue that it is unethical to continue to prescribe bed rest because it violates the ethical principles of autonomy, beneficence, nonmaleficence, and justice. Although patient autonomy could be respected through an informed consent discussion in clinical practice, the current evidence does not provide a means to adhere to the other ethical principles. Given this, the authors contend that bed rest should be limited to clinical trials and therefore subject to the same oversight and regulation as any other unproven medical or surgical treatment.

Although Hippocrates taught the value of rest in the treatment of disease, he also indoctrinated his pupils to "First, do no harm." As obstetricians, we need to evaluate our adherence to this doctrine. As highlighted by the two articles in this issue, we may not be performing as we intend. Until data from well-designed, appropriately powered studies demonstrate favorable outcomes with activity restriction, physicians should contemplate whether the risk–benefit ratio justifies prescribing it. The frequency with which activity restriction, in any form, is recommended during pregnancy should provide ample patients for clinical trials. Moreover, modern technology, with use of accelerometers to record all patient activity and allow assessment of patient compliance, can remove a major weakness of prior studies. Given the potential physical, psychological, and financial effects of the continued recommendation of bed rest, we need methodologically sound clinical trials to put the issues surrounding activity restriction and bed rest to bed once and for all.

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