blockers between 24 and 48 hours after patient admission for HF decompensation was as safe as the usual approach, namely, beta-blockers alone and use of ivabradine only in patients with heart rate > 70 bpm after maximum beta-blocker dose. The patients randomized to the ivabradine + beta-blocker group had a significantly lower heart rate 28 days after discharge, which was associated with a highly significant increase in ejection fraction at 4 months after discharge and a better functional class.[6] At 1-year follow-up, the left ventricular ejection fraction continued to be significantly higher in the patients who underwent early treatment with ivabradine during hospitalization. These data indicate the potential beneficial effects of this strategy for acute HF, which is of paramount importance given that no clinical trial has shown a favorable effect of any intervention (pharmacological or non-pharmacological) in this setting, as stated in the 2016 guidelines.[1,2]

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Radiation Exposure to the Pregnant Interventional Cardiologist. Is It Really Necessary?

Exposición de las cardiólogas intervencionistas a radiaciones ionizantes durante el embarazo. ¿Realmente es necesario?

To the Editor,

We read with great interest the article by Velázquez et al.[1] on radiation exposure in pregnant interventional cardiologists and we would like to congratulate the authors on their thoroughness. However, there are some issues that we would like to comment on.

First, the authors state that concern about ionizing radiation exposure during pregnancy can mean a 1-year interruption to the cardiologist's career. However, most cardiac catheterization and electrophysiology sections have more than one cardiologist,[2,3] and therefore in many cases the female worker can avoid exposure with a simple redistribution of tasks. This could, however, mean excess work load for the other members of the department unless maternity leave is covered by an interventional cardiologist. In addition, when the same department has 2 cardiologists who both wish to have children at a similar time, it may be (and often is the case) that they have to coordinate their pregnancies, although this is not always feasible for biological reasons.

Second, the authors assert that it is possible to work in the catheterization laboratory with a practically negligible risk if appropriate precautions are taken. We firmly defend the right of the workers to decide, rather than subjecting them to the dictates of Occupational Health and Safety, but we are concerned that there are no controlled clinical studies and that most of the data are extrapolated from animal studies. If we draw a parallel with drugs, most are not recommended during pregnancy because they have been tested only in animals, and the risk (however "negligible") is only accepted when there is a medical reason. However, in the case of workplace exposure to radiation, the risk is accepted with no medical reason, which goes against the recommendations of Occupational Health and of the obstetrician, as well as the father's obvious reluctance. Furthermore, as the authors mentioned, the probability of spontaneous congenital malformation or childhood cancer is 4.07%. When this occurs, if the mother has been exposed to radiation, even if the dose received has been minimal and in theory the risk is negligible, it is likely that an explanation will be required, or demanded.

The article describes the protection used by exposed female workers. Two of them used additional material (1 of them up to 3 lead skirts), from which we can deduce that they did not feel safe with the standard protective equipment. Furthermore, it is often forgotten that pregnancy constitutes a situation of particular risk that predisposes to worsening of varicose syndromes and musculoskeletal problems due to the change in lumbar curvature and weight gain: use of skirts and vests (not to mention additional material) further aggravates this risk. We suggest that it would be preferable to invest in other protection methods, such as navigation systems, with which multiple substrate ablations can be performed without fluoroscopy,[4] and, above all, the use of complete protection screens (eg, hood-type) that are used in Europe, which avoid the need for vests and aprons and their associated problems.

Last, we wonder whether female interventional cardiologists feel completely free when deciding not to modify their activity during pregnancy. As we all know, working conditions have deteriorated in recent years and such decisions may be affected by the high rate of temporary contracts, up to 40% in the public health system.[5]

Therefore, until controlled studies in this setting are published, instead of burdening the female worker with the responsibility for this decision, we believe that it would be more appropriate to focus on adequately equipping laboratories with complete radiological protection methods, which in addition would benefit all exposed workers.

CONFLICTS OF INTEREST

R. Cózar León declares having received payments from Boston Scientific for giving lectures.

E. Díaz Infante declares having received payments from Boston Scientific, St Jude Medical, Medtronic, and Biotronik for giving lectures and educational presentations.

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Radiation Exposure to the Pregnant Interventional Cardiologist. Is It Really Necessary? Response

Exposición de las cardiólogas intervencionistas a radiaciones ionizantes durante el embarazo. ¿Realmente es necesario? Respuesta

To the Editor,

The issue of "exposing pregnant workers to ionizing radiation"[1] has always been controversial. The lack of knowledge and information on this topic causes many women to do what they have always seen other women do, namely, change their professional role during pregnancy, without considering whether there are any grounds for this option.

We are not advocating freedom for women to decide against departmental recommendations on radiological protection, rather we are showing that it is possible to continue working in the same professional position according to the national and international radiological protection standards. Royal Decree 783/2001,[2] which regulates health protection against ionizing radiation, established that the embryo must be protected by applying an equivalent dose limit of 2 mSv to the pregnant woman's abdominal surface. This value provides the same level of protection as in the general population (1 mSv per official year). None of the workers in our series came close to this limit.[1] According to the International Commission on Radiological Protection, "The restriction of the dose to the fetus does not mean that it is necessary for pregnant women to avoid work with radiation…completely…however…their employer should carefully review the exposure conditions…employ-employment should be of such a type that the probability of high accidental doses and high radionucleotide intakes is extremely low".[3] We all agree that the fetus must not receive ionizing radiation, but if the woman is adequately protected, the fetus will not be exposed. Of course, any method that reduces workers' exposure to ionizing radiation, such as hood-type screens or electrophysiology navigation systems, is welcome and should be incorporated into laboratories.

In all the women in our study, the female interventional cardiologists' continuing professional activity was agreed, approved, and supervised monthly by the respective radiological protection departments. That is how it can and should be done, to ensure the protection of the fetus.

Last, we are not suggesting that pregnant women be obliged to continue their professional activity in the catheterization laboratory. We simply reported that, should a woman wish to continue working in the laboratory while pregnant, for her own reasons, or because she is at a particular point in her career, she can do so knowing that she is not exposing the fetus to additional risk.

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