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LETTER TO THE EDITOR

Post-partum Hemorrhage and Maternal Mortality in Low-Income Countries and the Forgotten Role of Interventional Radiology

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A recent meta-analysis by Thangaratinam et al. [1] shed some light to the specifics of what appears to be a major humanitarian crisis. Women undergoing caesarean section in low- and middle-income countries face a risk of death around 100 times higher than women who have the procedure in the UK, with women in sub-Saharan Africa facing the highest risk of death (10.9 deaths per 1000 procedures). The study emphasized on the fact that the majority of all maternal deaths following caesarean section were attributed to post-partum hemorrhage (32%).

As post-partum hemorrhage (PPH) was the major cause of maternal death following caesarean sections, it was recognized that there are obvious deficits in resources and skills to manage this complication [1]. What is not mentioned in the article is the complete absence of interventional radiology (IR) services that can dramatically improve the chances of stopping post-partum hemorrhage when other non-invasive management protocols have failed. Pelvic artery embolization to control PPH is considered an established technique as a first-line treatment option in the management of PPH where conservative management fails [2]. In 2006, the Royal College of Obstetricians and Gynaecologists advised in favour of the early involvement of IR in the management of PPH and initiation of clinical pathways that include IR either in high-risk women for PPH or in response to PPH [3].

At the moment, radiology services in low-income countries are still significantly lagging behind the middle- and high-income countries as the World Healthcare Organization (WHO) noted it in a recent report [4]. IR services are in an even worse state at the sub-Saharan Africa states, where entire countries and millions of people are with no access to life-saving IR procedures. The RAD-AID organization is doing a great job in initiating training programs that raise awareness around image-guided surgery, and Tanzania is a great example where the first cohort of local radiologists is training IR procedures in a structured sustainable way. Health Education England is also working, in collaboration with the Ministry of Health of Uganda, towards building a business case for setting up such a sustainable IR training program that will focus on embolization training for the management of PPH and bleeding related to trauma. Uganda, a country of 40 million people, has unfortunately one of the highest PPH rates [5] in Africa. The development of such an IR service in combination with the improvement in the clinical pathways for management of acute bleeding could help saving many young lives.

For many years, IR was considered a "luxury" specialty that only high-income countries could afford; however, there is evidence to suggest that this is not accurate. Sharma and Ganga [6] recently reported that it is possible to develop a global network of trained personnel who can support IR programs in challenging locations as long as there is strong will and collaboration between countries and organizations. Vidal et al. [7] also recently reported on the "fair-embo" concept showing that it is possible to decrease

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the cost of embolization procedures by using inexpensive embolic materials that could be produced locally. As an IR community, we have a responsibility to support this effort by offering training and advise on how to actually set these complex services up. At the same time, it would be helpful to see the medical devices industry getting more involved in supporting these initiatives, which has the potential to help thousands of mothers and their families. Finally, we believe that organizations, such as the WHO, have to improve their understanding on image-guided surgery and obtain more data on the current status in Africa.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

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