EDITORIAL

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Dealing with late maternal death due to cardiovascular disease

Globally, cardiac disease is emerging as an important indirect cause of maternal death. Cardiac conditions can be pre-existing, such as the case with rheumatic heart disease or congenital heart disease which can be unmasked by the increased haemodynamic load in pregnancy, or they can be caused by pregnancy, e.g. hypertensive disorders or peripartum cardiomyopathy (PPCM).

Pregnancy is often delayed with the aim being to first attain professional and financial security. However, this leads to an increased prevalence of risk factors such as obesity, diabetes and hypertension in the obstetric population, which contributes to increased maternal morbidity and mortality (Figure 1). Maternal mortality has been more difficult to track over time at national level, particularly in lower-to-middle income countries (LMICs) such as South Africa. Incomplete data sets, inexperience of physicians in applying the classifications, misclassification of maternal deaths to other causes, also in countries with complete vital registration, are

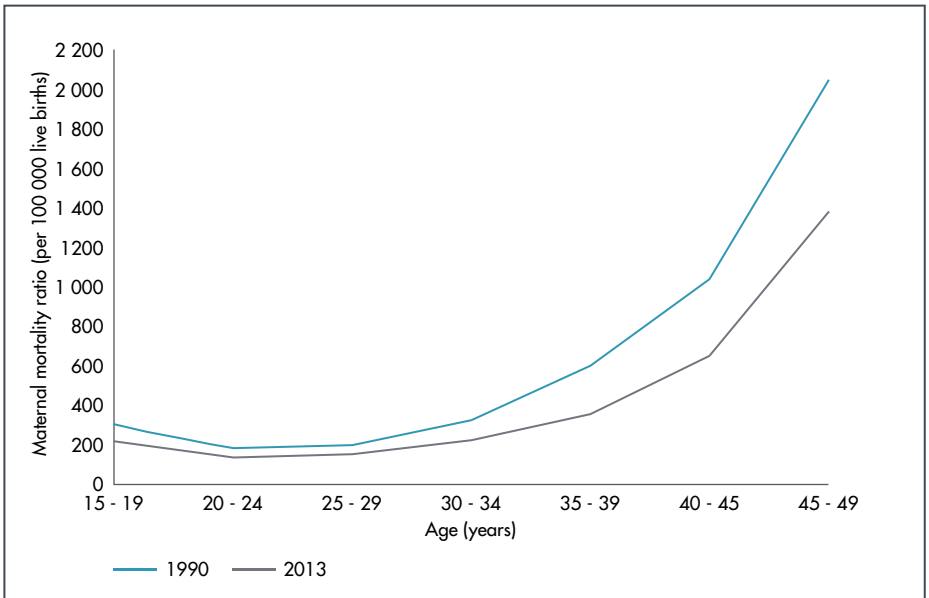

FIGURE 1: Global maternal mortality ratio in 1990 and 2013, by age. Shaded areas show 95% uncertainty intervals[1]

common problems.[1] However, many cases remain unreported, due to the lack of linkage to the causality of the pregnancy. Maternal death is rarely reported beyond 6 weeks postpartum. The ICD10 classification (version 10), defining late maternal death (6 weeks - 1 year), is often not applied. This leads to the fact that death as a result of e.g. PPCM, which often only presents 3-5 months postpartum, women dying as a result of left ventricular dysfunction and heart failure related to hypertensive disorders in pregnancy, or death related to right heart failure in complex congenital heart disease, remains unreported and, therefore, not adequately addressed.

A recent single-centre prospective cohort study from Groote Schuur Hospital[2] has also reported that most of the deaths were attributable to different forms of cardiomyopathies, with only 2 being related to complications attributable to sepsis and thrombosis affecting prosthetic heart valves. However, 8 of the 9 deaths reported in this 152 patient cohort with a 6-month outcome period, would not have been reported if the definition of death within 42 days had been applied, thus underestimating the number of cardiac deaths related to pregnancy as a result of late presentation and deaths occurring among women with familial or PPCM.

There has been a steady increase in the institutional maternal mortality rate (iMMR) for cardiac disease over the last decade in South Africa.[3] The iMMR for cardiac disease in 2005 - 2007 was 3.73 and this has increased to 5.64 during 2008 - 2010 and to 6.00 per 100 000 during 2011 - 2013. After non-pregnancy related infections, cardiac disease is the second most common cause of indirect maternal death with complications of rheumatic heart disease and cardio-myopathy being the most important and equal contributors to cardiac deaths.

The fact that more than half of those cases occurred post-partum is an important finding. It implies that the maternal death rate in South Africa, which is already estimated to be 176/100 000[1] is probably grossly underestimated as death could only be reported until 42 days postpartum. Cardiomyopathies or other causes of left ventricular dysfunction, that often only present with heart failure or severe arrhythmia leading to death beyond that period, is of major concern. These deaths, no matter how late they may present, are pregnancy-related and at least some of the interventions depend upon adequate counselling about the risks of future pregnancy, access to adequate contraceptive services, or termination of breastfeeding and use of the medication bromocriptine, as there is increasing evidence that it leads to better outcomes in patients with PPCM. This is crucial as available data strongly suggest that subsequent pregnancy in patients with PPCM is associated with a high risk of relapse and death.[4]

Valvular heart disease in pregnant women, whether due to congenital or acquired aetiologies such as rheumatic heart disease, poses a challenge to clinicians and their patients. Significant valve disease in

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pregnancy increases the risk to both mother and foetus and requires a careful preconception risk assessment and, subsequently during pregnancy, specialised care to minimise maternal and foetal morbidity and mortality.

All women with valvular heart disease should ideally undergo preconception evaluation, including advice on risk prediction and contraception, by a joint cardiac–obstetric team seeking advice

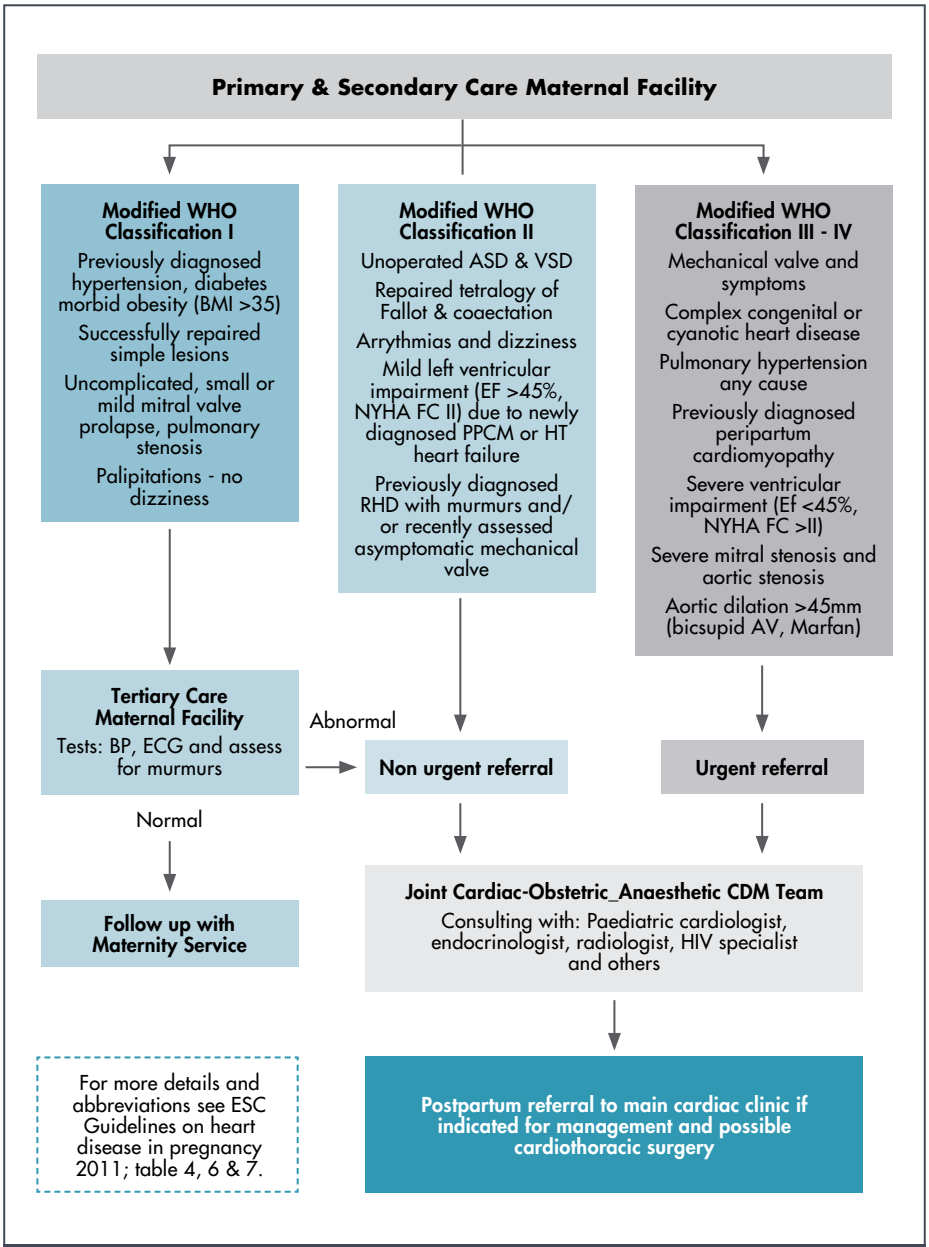

FIGURE 2: Referral Algorithm for suspected and previously known Cardiovascular Disease in Maternity (CDM)

from other specialties.[5] Zühlke and co-authors recently reported from the REMEDY study that among 1 825 women with rheumatic heart disease in child-bearing age only 3.6% were on contraception.[6]

In conclusion, care needs to be stepped up, and this includes possible earlier referral to the general cardiac clinic or cardiomyopathy clinic. However, joint obstetric-medical-cardiac clinics would be the optimal approach for these patients. For the better management of cases in the postpartum period, physicians and cardiologists clearly need to play a more prominent role and take over care at an earlier stage. A need to provide focused training to medical registrars in this area has already been identified. Several tertiary level hospitals in South Africa, such as the Steve Biko Academic Hospital (Pretoria) and Tygerberg and Groote Schuur Hospitals (Cape Town), now provide weekly cardiac-obstetric clinics, as well as regular obstetric medicine lectures in their registrar training programmes.

Appropriate guidance in referral to secondary and tertiary care hospitals, with dedicated cardiac disease in maternity clinics, should be implemented and this is currently being explored in South Africa.

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