The classification, diagnosis and management of the hypertensive disorders of pregnancy: A revised statement from the ISSHP

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There has never been a definite consensus on the classification and diagnostic criteria for the hypertensive disorders of pregnancy. This uncertainty is likely to have led to between-centre differences in rates of adverse maternal and foetal outcomes for the various hypertensive disorders in pregnancy, particularly pre-eclampsia.

In 2000, the International Society for the Study of Hypertension in Pregnancy (ISSHP) recognised that this lack of consensus was one reason for controversies concerning counselling, management and documentation of immediate and remote pregnancy outcomes. Accordingly, the Society appointed a committee that reviewed available classifications and endorsed and published an international recommendation for how these disorders should be classified and diagnosed in pregnancy [1]. The major stumbling block remained whether or not proteinuria should be retained as a *sine qua non* for the diagnosis of pre-eclampsia; the Society recommended that a broad definition, at times not including proteinuria, could be applied for the of pre-eclampsia whilst the

to diagnose pre-eclampsia superimposed upon underlying renal disease because these patients commonly have impaired GFR and/or proteinuria to begin. In these cases pre-eclampsia can generally be diagnosed when another feature such as new onset liver dysfunction, thrombocytopenia or neurological features develop. Even then uncertainty may remain and this is another area where a diagnostic test such as measurement of angiogenic or inflammatory factors in serum or urine may prove fruitful in the future.

Proteinuria

The gold standard for diagnosing abnormal proteinuria in pregnancy is a 24-h urinary protein $\geqslant$300 mg per day, though this is more a time-honoured value than one with high scientific proof [16]; ideally 24 h creatinine excretion will also be used to assess adequacy of collection as without this the estimated daily urine protein excretion is often incorrect [17]. In practice, the 24 h urine protein measurement will often be replaced with a spot urine protein/creatinine ratio, a value $\geqslant$30 mg per mmol (=0.26 mg/mg, usually 'rounded' to 0.3 mg/mg) representing significant proteinuria [18–20]; this eliminates the inherent difficulties in under-

- **The proteinuria persists postpartum and ultimately sig-**

Other factors less strongly associated with pre-eclampsia include but are not limited to:

- primiparity (although pre-eclampsia may occur in subsequent pregnancies even in the absence of pre-eclampsia in the first),
- primipaternity – both changed paternity [37] and an interval greater than 5 years have been associated with an increased risk for pre-eclampsia [38],
- short duration of sexual relationship (<6 months) prior to the pregnancy [39],
- obesity,
- African American race,
- advanced maternal age,
- family history of pre-eclampsia [40,41].

Thrombophilias have no clear association with near term pre-eclampsia but Factor V Leiden may be a risk factor for the rarer case of very early onset pre-eclampsia, particularly when associated with severe foetal growth restriction [42].

At present, there is no clinically useful prediction model for the development of pre-eclampsia.

As well as predicting the development of pre-eclampsia there are recent studies aiming to predict clinical outcomes for women when they initially present with early features of pre-eclampsia. Measurement of angiogenic factors may play a role in this regard in the future but is still at a research stage [43].

and100 mmHg diastolic [7]. Differing authorities have recommended different cut-off blood pressure levels at which to commence routine antihypertensive use

Of note, neither the serum uric acid nor the level of proteinuria should be used as an indication for delivery.

What do other guidelines say?

ISSHP acknowledges the expertise and rigorous approach that has been undertaken in the development of several key guidelines including:

- **NICE (5)**
- **SOMANZ [3]**
- **Canadian [8]**
- **ACOG (ACOG. Practice guideline WQ 24)**

The key areas in which these guidelines differ are:

(1) the requirement for proteinuria in the diagnosis of pre-eclampsia (NICE)
(2) the level at which routine antihypertensive treatment of blood pressure is mandatory and the target BP thereafter
(3) when magnesium sulphate should be administered

Adopting the management recommendations of any of these guidelines is entirely justified and appropriate. Importantly, ISSHP recommends that each unit has a specific policy as to which management guidelines are to be followed so that there is uniform practice within each unit. In addition, each unit should strive to record and evaluate

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