Table 1. Features of *in vitro* blood-brain barrier models*

Primary cultures	Advantages	Disadvantages
	All models -Retain a phenotype similar to the *in vivo* barrier. - Use of co-cultures and supplements can improve the phenotype.	**All models** - Ethical concerns regarding the source of tissue. -Time consuming and resource-intense
Murine Rat Bovine Porcine Human	**Bovine and porcine-based models** - Less animals required than for rodent-based systems. - Isolation procedures provide high yields. - Appropriate for permeability studies **Human-based models** - Use of hPSC could provide more relevant models.	**Rodent-based models** - Require large numbers of animals for sufficient tissue. - Isolation procedures provide low yields. **Human-based models** - Poor availability of human tissue. - hPSC-based models are promising, but need development.
Cell lines		
Murine b.END3, cEND, cerebEND Rat RBE4, GPNT Porcine PBMEC1/2 Human hCMEC/d3, BB19, ECV304	**All models** -Less expensive than primary cultures -Faster and easier to generate than models comprised of primary cells - Highly reproducible results obtained **Human-based models** - Better represent human BBB phenotype than do other models	**All models** - Loss of phenotype - Use of supplements and co-cultures do not always improve their relevance - Most cell lines are not suitable for permeability studies

*References within the manuscript

Table 2: Features of clinical approaches for studying cerebral complications in preeclampsia*.

MR-technique	Advantages	Disadvantages
Magnetic resonance imaging Magnetic resonance spectroscopy	**All models** -Non-invasive -Not operator-dependent -Evaluated in eclampsia **Magnetic resonance imaging** -Whole-brain coverage -High soft tissue contrast -Vasogenic and cytotoxic edema -Flow -Perfusion -Cortical activation -Cortical networks -White matter integrity -Volumetric studies **Magnetic resonance spectroscopy** - Metabolic information	**All models** -Requires stable patient to perform examination -Long acquisition time -Contraindicated for patients with claustrophobia -Might not be accessible in low-income settings **Magnetic resonance imaging** -No metabolic information **Magnetic resonance spectroscopy** -Poor spatial resolution
Cerebral Doppler		
Cerebral perfusion pressure Dynamic cerebral autoregulation	**All models** -Non-invasive -Bedside examination **Cerebral perfusion pressure** - Short acquisition time - Can be repeated before/after treatment **Dynamic cerebral autoregulation** - Evaluates the response of blood vessels response to continuous systemic blood pressure changes, doesn't rely on absolute blood pressure levels	**All models** -Operator-dependent -Learning curve to obtain transcranial window -Might not be accessible in low-income settings -Not evaluated in eclampsia **Cerebral perfusion pressure** -Diverging results between studies **Dynamic cerebral autoregulation** -Long acquisition time -Requires software for reading, not commercially available
Cerebral biomarkers		
S100B	**All models** -Easily accessible	**All models** -Might not be accessible in low-

Neuron Specific Enolase Neurofilament light chain tau	-Not operator-dependent **S100B** -Astrocytic origin, located at the blood-brain barrier interface - Have been shown to reflect blood brain barrier injury **Neuron Specific Enolase** - Reflects neuronal injury **Neurofilament light chain and tau** - Reflects axonal injury - Promising biomarkers in degenerative disease	income settings - Not evaluated in eclampsia -Not exclusive origin in the central nervous system **S100B** - Also found in adipose tissue **Neuron Specific Enolase** - Found in red blood cells – sensitive for hemolysis - Not certain to reflect blood-brain barrier injury **Neurofilament light chain and tau** - Not certain to reflect blood-brain barrier injury - Also found in adipose- and soft tissue
Clinical signs and symptoms		
Neurological symptoms Vital parameters	**All models** -Easily accessible -Accessible in low-resource settings - Non-invasive **Neurological symptoms** - Used in clinical practice **Vital parameters** - Used in clinical practice - Not operator dependent	**All models** -Poor predictive values -Mostly studied retrospectively **Neurological symptoms** - Operator dependent **Vital parameters** - Not evaluated for adverse cerebral outcomes

*References within the manuscript