Stroke in Pregnancy

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Presenter Disclosure

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Relationships with commercial interests:

None

Potential for conflict(s) of interest:

None

Outline

- Women with a prior history of stroke who are planning to become pregnant
  - Pre-pregnancy counselling
  - Contraception
  - Medication safety
  - Antithrombotic treatment
  - Statin
  - Blood pressure

Outline

- Specific stroke etiologies
  - Cardioembolic stroke
  - Cervicocephalic artery dissection
  - Cerebral venous sinus thrombosis
  - Antiphospholipid antibody syndrome

FIGURE 1: WOMEN WITH A HISTORY OF STROKE WHO ARE PLANNING OR BECOME PREGNANT

CANADIAN STROKE BEST PRACTICE RECOMMENDATIONS

Stroke in Pregnancy

A Consensus Statement by the Canadian Stroke Best Practices Stroke in Pregnancy Writing Group.

Part One: Prevention of Recurrent Stroke in Pregnant Women and Women Planning a Pregnancy.

Swartz R H, Ladhani NNN. (Writing Group Chairs) on Behalf of the Canadian Stroke Best Practice Recommendations STROKE IN PREGNANCY Writing Group

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Pre-pregnancy counselling in women with prior stroke

- Discussions of pregnancy and implications for stroke survivors should be included as a routine part of post-stroke management for all female stroke survivors of reproductive age

- 30 out of 100,000 pregnancies are affected by stroke
  - This is three times the rate of stroke in young adults

Pregnancy aspects and stroke

- Hypertension (gestational, chronic, pre-eclampsia, eclampsia)
- HELLP
- Prothrombotic changes in 3rd trimester and 6 weeks post-partum
- Reversible cerebral vasoconstriction syndrome

Contraception

- Consider patients' fertility and pregnancy plans and stroke mechanism
  - Estrogen-containing contraceptives or HRT can increase the risk of thrombosis, generally should be avoided
  - Progesterone-only oral contraceptives, progesterone-only or non-hormonal IUD, or barrier contraception can be considered

Stroke Mechanism

- Ensure that a thorough workup of stroke etiology has been done

Risk Factors and Medications

- Diet and lifestyle, traditional risk factors should be screened and treated, with medications reviewed for potential teratogenicity
  - Developmental and Reproductive Toxicology (DART) Database https://toxnet.nlm.nih.gov/newtoxnet/dart.htm
  - Reprotox – reprotox.org

Antiplatelet Agents

- Low-dose ASA is usually the best option before and during pregnancy
  - If previously on clopidogrel or other antiplatelet agents, should switch to ASA unless there is some other consideration like a recent coronary artery stent

ASA and breastfeeding

- Low-dose ASA does not appear to be excreted in breast milk
- Avoid higher doses of ASA due to risk of metabolic acidosis, theoretical risk of Reye's syndrome

Anticoagulation

- Can be complex and should be coordinated with obstetrician, and hematologist if necessary
  - Special considerations: prosthetic heart valve, recent stroke, stage of pregnancy
- Can be difficult to plan for cessation of anticoagulation prior to delivery
  - History of preterm labour? Or rapid delivery?

Anticoagulation choice

- Warfarin is potentially teratogenic and should be avoided generally
- LMWH is preferred
- Insufficient data on DOACs
- Low-dose LMWH should be stopped 12 hours before regional anesthesia, full-dose 24 hrs before anesthesia or induction

Blood pressure

- Stop ACEi prior to pregnancy or as soon as pregnancy is recognized
  - Risk of fetal kidney injury and low amniotic fluid
- Can use labetalol, methyldopa, long-acting nifedipine
- Target < 140/90

Hypertension during pregnancy

- Needs prompt management by expert in management of hypertension in pregnancy
  - After 20 weeks, must rule out pre-eclampsia
- If pre-eclampsia or gestational hypertension, must have long-term follow-up as CVD and stroke risks remain elevated

Statins

- Can stop statins preconception and during pregnancy
- Restarting depends on factors like: recent MI, compatibility with breastfeeding
- Lipid levels in pregnancy are unreliable

Specific stroke etiologies

- Cardioembolic stroke
- Cervicocephalic artery dissection
- Cerebral venous sinus thrombosis
- Antiphospholipid antibody syndrome

Cardioembolic stroke

- For conditions that need anticoagulation (artificial valve, intracardiac thrombus), anticoagulation should be continued but adapted for safety (e.g. LMWH instead of warfarin)
- PFO closure not recommended; use low-dose ASA or LMWH at prophylactic doses

Cerebral venous sinus thrombosis

- Can use unfractionated heparin or LMWH for remainder of pregnancy and 6 weeks post-partum, or when post-partum switch to oral anticoagulation is feasible

Cervicocephalic Artery Dissection

- Treatment options include low-dose ASA and LMWH
- No evidence for routine Caesarean delivery in women with prior dissection

Antiphospholipid antibody syndrome

- Treat with LMWH alone or in combination with low-dose ASA
  - Should coordinate with hematologist and obstetrician

Summary

- Counselling on pregnancy for stroke survivors should be discussed
  - Often, involves multiple specialties including Stroke, Obstetrics, Hematology, Cardiology
- Medication safety and compatibility with breastfeeding are critical considerations
- Stroke mechanism is critical to tailoring individual stroke management during pregnancy