

Complications of post angioplasty bleeding



Introduction

This paper is aiming to identified the potential complication of post angioplasty bleeding and abrupt closure of coronary artery base on the case of Elizabeth Green from caseworld and explore the issue in depth and widen horizon. Relevant nursing decisions and recommendations of post angioplasty care will be provided and discussed which is based on clinical guideline of the University of Minnesota Hospital and Clinic(UMHC).

This article is structured into three aspects which are indications of the percutaneous coronary angioplasty and Mrs Green's data, evidence-supported nursing interventions for bleeding prevention and evaluation of the interventions regarding to ANMC competency elements. The determine progress of individual plan and quality improvement of unique care will be presented.

Indication of the percutaneous coronary angioplasty and Mrs Green's case data

Apart from a very small percentage of individuals who has difficulties to pass the guide wire or the balloon catheter through the narrow artery, 90%-95% of patients can be effectively relieved from coronary arterial obstruction after the percutaneous coronary angioplasty.

Percutaneous coronary angioplasty is a non surgical treatment offered to patient with coronary artery disease, the major aim of this procedure is to increase the arterial lumen size and allow greater blood flow. A ballon tipped catheter is used to split and reshape the atheromatous material, pushing it

to the artery wall therefore more blood can be transferred through the particular artery.

Abrupt closure of the dilated coronary artery and bleeding are two uncommon but possible complications for Elizabeth Green within the very first few hours post angioplasty.

The cause of abrupt closure varies, it can be due to combination of dissection of the inner lining of artery, thrombosis and spasm at the balloon site. As to assist in preventing thrombosis formulation during or post percutaneous coronary intervention, oral anticoagulant medication including aspirin will be administered to avoid platelets from adhering the artery wall and stimulating blood clotting. To further prevent blood clotting, intravenous heparin or synthetic analogues of heparin molecule can be given to the patients.

The anticoagulant drugs can help reduce the risk of abrupt closure however can contribute to increasing risk of post angioplasty bleeding. Giving the fact that Mrs Green's gender, age, past history of unstable angina and episode of heart attacks make her at high risk for bleeding or bruise on the puncture site.

The femoral sheath is funnel-shaped and consist of femoral artery, femoral vein and lymphatic, If there is a bleeding in the femoral sheath, it can spread to the abdominal wall follow the wall of the sheath. There will form a continuation of the transversalis fascia and the femoral sheath can directly connect to the anterior abdominal wall.

Differ from bleeding to abdominal wall there is another kind of post angioplasty bleeding named rectus sheath hematoma (RSH). The damage or tear to the superior or inferior epigastric arteries can result in bleeding into the rectus sheath. In many case of major bleeding, RSH can also lead to other complication including multiorgan dysfunction and abdominal compartment syndrome Even the fact that RSH has not been detected post a PTA procedure, when patient present episode of acute abdominal pain, RSH can be considered as a differential diagnosis.

evidence-supported nursing interventions for bleeding prevention

Following Angioplasty

After the procedure, pressure is required to apply on the site for about 5-10mintues in order to close off the insertion holes in the arteries. Patient will be positioned to lie on their back with gauze dressing taped to the site for 4-6 hours. 4-6 hour is proper for normal blood clotting seals the hole in the artery. On the other hand, patient need to be assessed for recurring chest pain which indicate the procedure artery is re-closed, bleeding at the groin site and symptoms of dye-induced kidney damage.

Guideline for the nursing care of a patient after percutaneous coronary angioplasty

The word ‘ guideline’ is chosen rather than ‘ standard’ is because clarify of term help in avoiding potential legal consequence. Literature has shown that, in a malpractice suit, standards may be used by plaintiff against hospital. Standards could be misconstrued for inappropriate purpose. In real case, if a

patient is required a nurse to monitor observation every 15minutes in the first hour post angioplasty, legally the nursing staff can be charged for not implement the standard, even the nurse is considering patients' urgent priorities. The term guidelines means those strategies are for quality improving and goals promoting for patient care. Nurse can remain independent nursing decision depend on patient's individual circumstance.

Nursing intervention for caring post angioplasty patient

1. Vital signs should be monitored and documented every 15 minutes in the first hour post procedure then every 30 minutes for 2 hours, every hour for 4 hours then 4 hourly observation. Do not use automatic blood pressure cuff.
2. While doing each of vital signs, assess patient femoral site, symptoms of oozing , swelling and increasing pain show signs of hematoma. Especially when patient is coughing, sneezing, vomiting and flexing position on bed etc, there is a high risk of bleeding.
3. If necessary or ordered, exam and monitor patient's coagulation test result and hemoglobin studies, usually it is done every 4-6 hours.
- 4 Follow prescribed regimen to perform anticoagulation therapy (goal is to have partial thromboplastin time 50-100)
- 5 Put a blanket over patient's extremity and tuck the end under mattress so patient's groin site can be immobilize however pressure area like ankle and heel should be protected by putting towels under

6 Movement of the patient need to be minimized. Only move the patient bed to bed once. Avoid weighting patient unless ordered by fellow. When patient need to toilet, use bedpan and turn patient away from the procedure site same with lying on the bed always preferred on the side away from procedure site. If the patient need to change position, educate patient to ask for assistance

7 Procedure site need to remain straight at the hips through out the process Educate patient not to extend and bend their limb.

8 Educate patient to cover their groin site when they coughs and sneezes.

9 Check patient medication history if he is on anticoagulant and provide assessment to the fellow for considerations.

10 Do not perform unnecessary venipunctures or intravenous insertions , intramuscular and subcutaneous injection only if the coagulation value is normal. Instruct the patient on all the above precautions and cares

11 When patient present bleeding, hold pressure on arterial venous puncture site as longer as the bleeding seems to stop usually take 20 minutes or more. Avoid using sandbag or pressure dressing unless ordered by physician.

12 Report and contact intern for any presenting bleeding or potential bleeding. . The PTCA fellow should be notified by the intern

13 Maintain transparent dressing to site at all times.

In patient's discharge planning, health provider need to provide education pack of self-care of angioplasty and long-term care for coronary disease,
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these contribute in of complication of angioplasty and further cardiac issue. For example in this education pack instruction need to be provided including when they can recovery to normal activity, in the few day post angioplasty, heavy lifting and strong exercise should be avoided hence the femoral site can heal properly and if patient detect early symptoms who should they contact and what do they need to report to the G. P

For patients who have been prescribed with aspirin or other antiplatelet medication post angioplasty, they need to be informed what are the medication the patient must take and the purpose. Usually when stent has been implanted, patient will be administered clopedigrol(Plavix) once a day for within 2-4 weeks time. This medication is an potent aspirin-like drug which help reduce the clot formulation around the stent during the first week after the procedure. To avoid life-threatening complication, clopedigrol is a good prevention and patient should bring this medication before they discharged as prescribed.

Specially for those patient who had medication history of anticoagulant to treat chest pain caused by the blockage, they can be resistant to the effects of aspirin thus regular blood examination is required to monitor patient's response to anticoagulant and the doctor can adjust the dosage of aspirin or change the medication.

Family support for the patient is essential in the recovery process, specially for elderly client who live alone, family visit help in early detection of complication and maintain of patient's regular social function.

EVALUATION OF QUALITY CARE

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Firstly if the nursing goal is achieved, clinical outcome directly match to effort, according to ANMC competence it is the nurses responsibility to fulfill duty of care and prevent harm to the patient for example, quickly identify bleeding in the post angioplasty patient.

Secondly, practises in accordance with profession framework, understand clinical guideline and perform excellence quality of nursing care, for example, Avoid venipunctures on the post angioplasty patient.

Thirdly, demonstrate analytical skills in accessing and and collecting patient's data. In the case of the post angioplasty patient, this can be like assess patient on their procedure site and vital signs to and make independent nursing judgment to meet quality care.

Based on the ANMC competency, nurse need to be able to identify individual and other team member's responsibilities. Example is the when there occur bleeding, the nurse should contact the intern for bleeding and report relevant assessment and information.

What's more, nurse need to use evidence-based practice and give patient step by step instructions for performing a task, for example with the onset of bleeding from groin site post angioplasty, nurse need to put on gloves and hold pressure on the sheath site for approximately 20 minutes or more.

Last but not least set up individual care plan for patient base on their preference and clinical objectives to meet unique demand of the patient.

Conclusion

Post angioplasty bleeding can be life threatening complication hence it is important for the health provider to monitor and assess early symptoms for internal or external bleeding. To practice within clinical guide benefit in prevention of the complication however individual situation should be considered and nurse need to make independent decision. Clinical guideline is aiming to improvement of quality of care thus evaluation of clinical outcome and feedback from patient play a role in improving practice.