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National Cardiovascular Center Harapan Kita

Nursing Role Of Acute Limb Ischemia After Intervention in Congenital Heart Desease

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Latar Belakang

Retrospective study in Toronto General Hospital Canada : 1999-2012 find 151 total pediatric patient with ALI →→ 91% were due to vessel cateterizaton, 5% were idiopathic, 1% were congenital, and 4% traumatic (Ahmed Kayeshi, et all, 2013)

2013-2014 Narayana Hospital India find 26 child < 5 years old assessed limb ischaemia, 50% post arterial line insertion, 50% postarterial sheath insertion (Ram BL, Rajesh S, George RK, 2018).

Di RSJPDK, data pasien cath dengan BB < 10 kg pada bulan mei 2018-des 2018 sebanyak 151 pasien dan 20 pasien (13,2%) mengalami pulseless post cath.

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What is Acute Limb Ischaemia?

Acute limb ischaemia is defined as the **sudden decrease in limb perfusion** that **threatens the viability** of the limb.

Acute limb ischemia (ALI) is a **potentially catastrophic event** that can lead to **death of nerve and then muscle tissue** within **4 to 6 hours unless the limb is revascularized.**

The effects of sudden arterial occlusion depend on the state of the **collateral blood supply**.

Etiologi of Acute Limb Ischemia

Emboli

80% dari atrium kiri (atrial fibrilasi atau infark miokard), katup prostetik, vegetasi, paradoksikal emboli (pada kasus DVT), atrial *myxoma*, aneurisma aorta

Thrombosis

Dehidrasi, hipotensi, malignan, polisitemia, status prototrombik, trauma vaskuler, **injuri Iatrogenik**.

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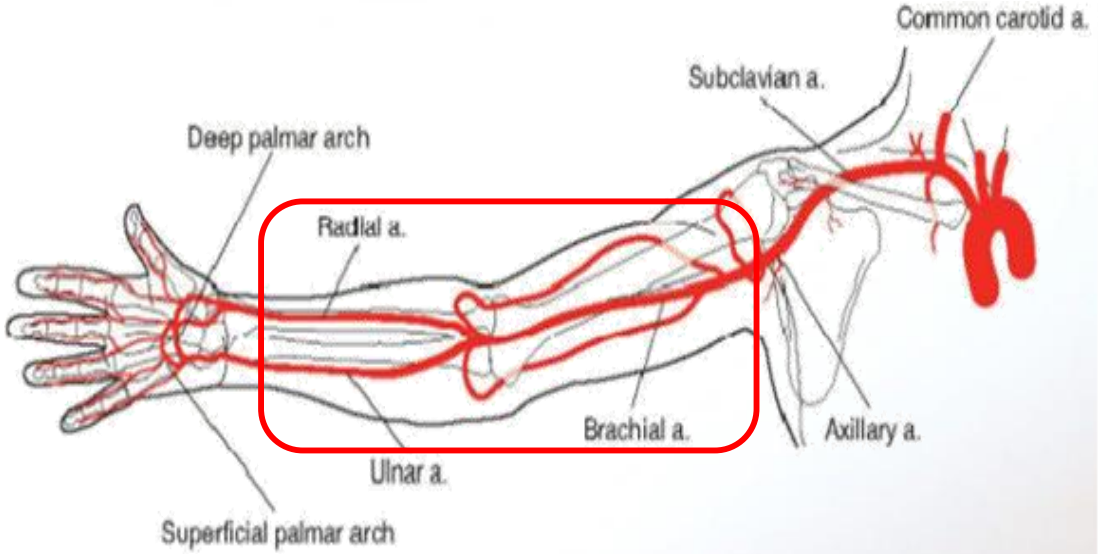
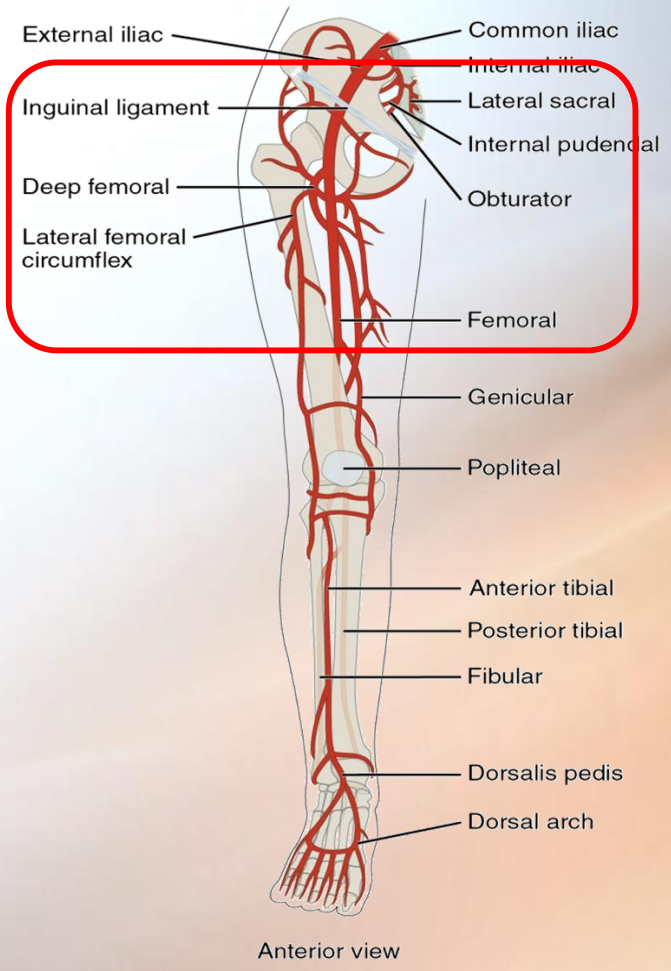
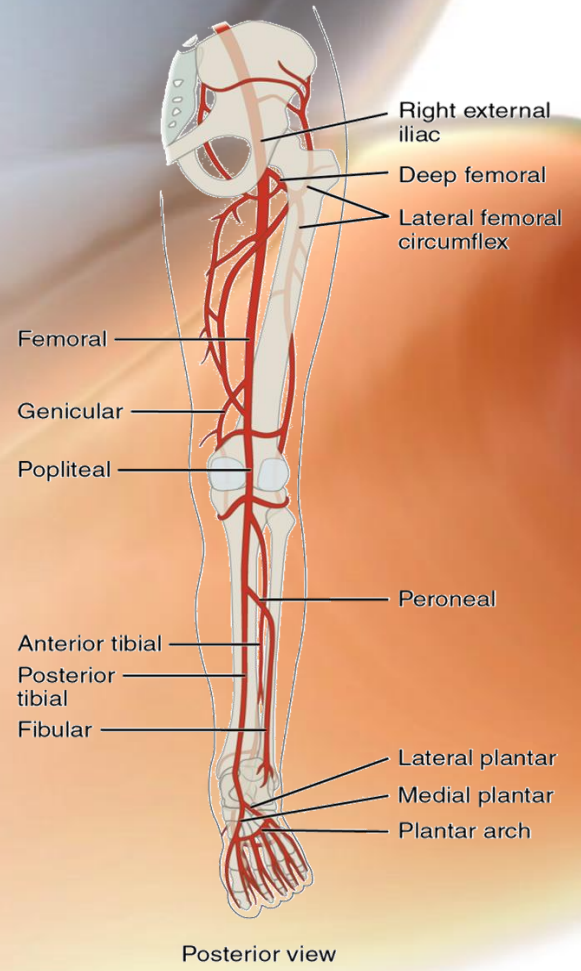
Limb Artery Anatomy

AL Site Insertion



Catetherization site Insertion





Arterial Thrombus Formation During Clinical Percutaneous Catheterization

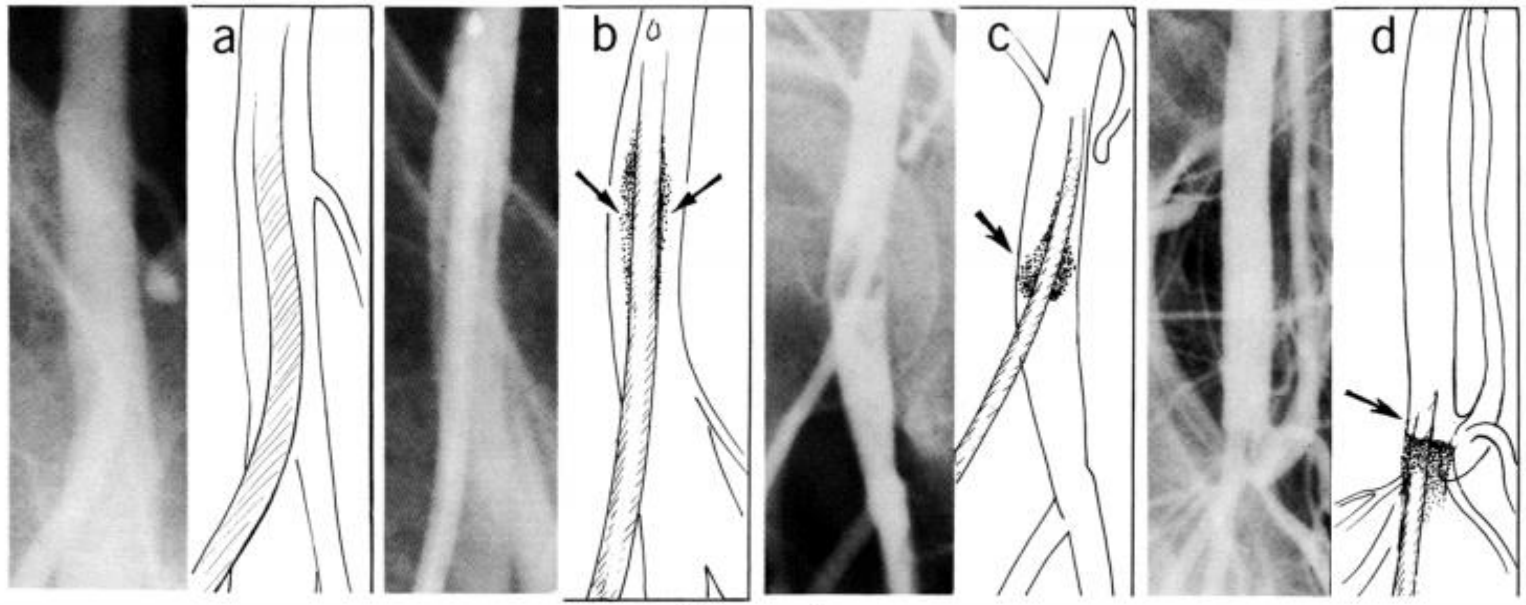


Figure 1

Examples of arteriograms made prior to withdrawal of the catheter at the end of diagnostic catheterization. The size of the radiolucent clot surrounding the opaque catheter varied from none (a), small (b), and large (c) to complete occlusion (d).

Dipengaruhi : ukuran kateter, jenis kateter, lama prosedur, *faktor pasien : hiperkoagulasi, polisitemia, dehidrasi*.

Clinical Manifestation (6Ps) :

- Pain,
- **Pallor**,
- **Pulselessness**,
- Paresthesia,
- **Perishingly Cold** (Poikilothermia)
- Paralysis.

Fixed mottling & sianosis

Diagnostik

01

Clinical presentation (6-P)

Pain, Pallor, Pulseless, Perishingly Cold, Perasthesia, Paralysis

02

Doppler Vaskular

(Doppler Duplex Sonography)

03

MRA & CTA

Magnetic Resonance Angiography & CT Angiography

04

Invasive Arterial Angiography

Investigasi *acute limb ischemia post intervensi*

Severitas dan durasi iskemik m'berikan **batasan waktu yang sempit** untuk pemeriksaan

Doppler Ultra Sound dan *clinical presentation* adalah Pilihan pertama untuk melihat arteri, mengkaji tingkat obstruksi & tingkat keparahan iskemik

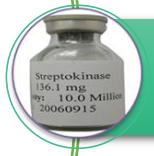
Rutherford Classification of ALI

Category	Description	Capillary return	Muscle paralysis	Sensory loss	Doppler signals	
					Arterial	Venous
I Viable	Not immediately threatened	Intact	None	None	Audible	Audible
IIa Threatened	Salvageable if promptly treated	Intact/slow	None	Partial	Inaudible	Audible
IIb Threatened	Salvageable if immediately treated	Slow/absent	Partial	Partial/complete	Inaudible	Audible
III Irreversible	Primary amputation	Absent staining	Complete tense compartment	Complete	Inaudible	Inaudible

Treatment


Oxygen, Iv Fluid, Acidosis correction

Anticoagulant



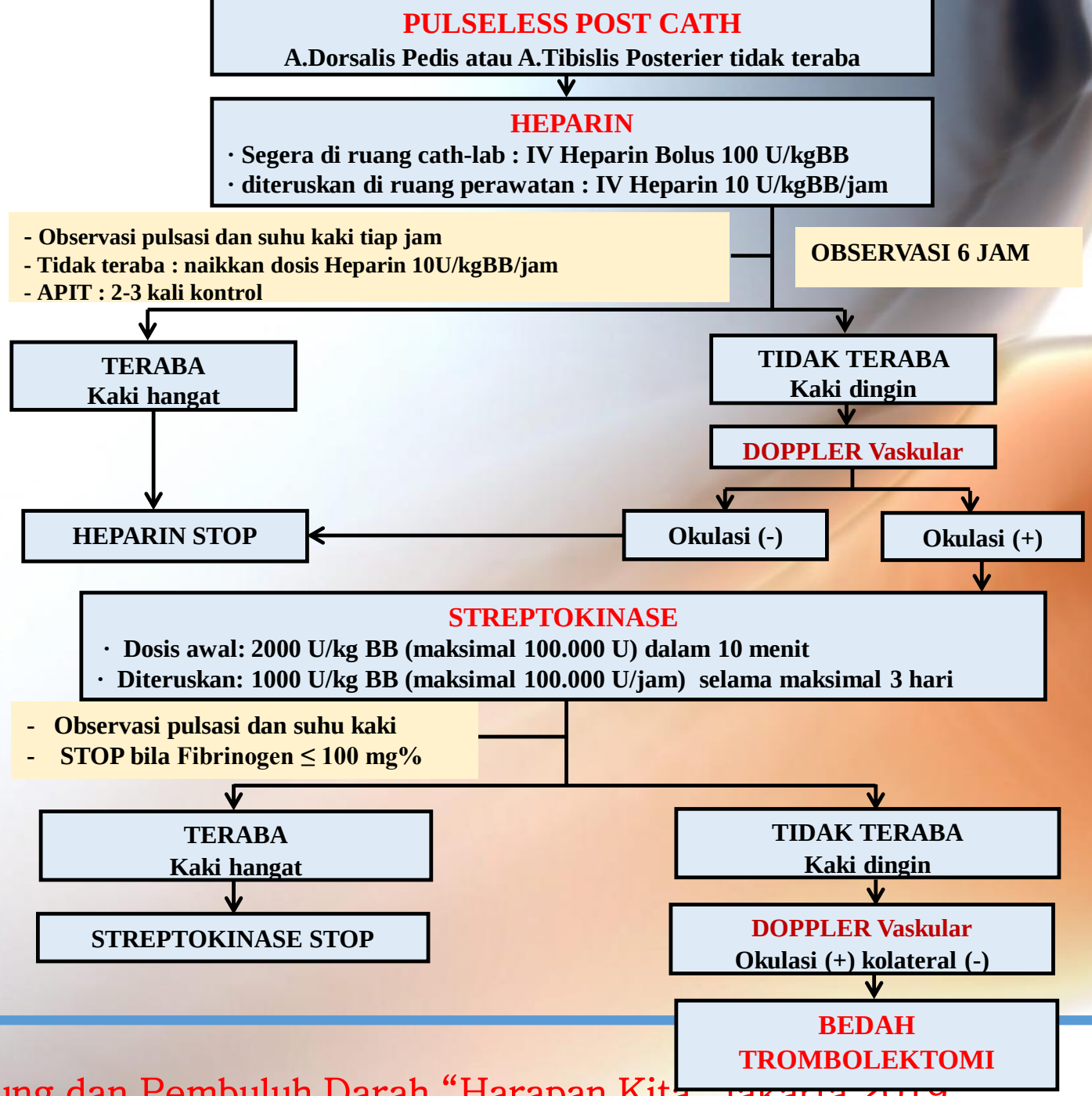
Thrombolysis


Operative revascularization

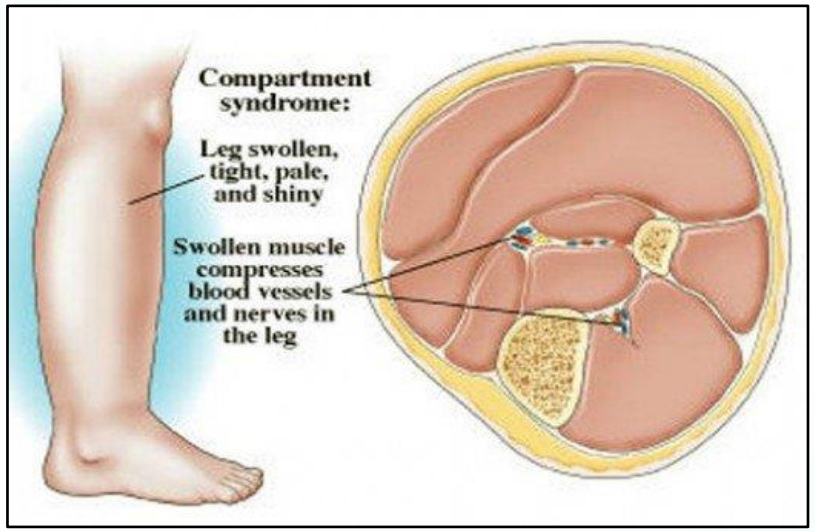

Amputation in irreversible ischemia

ALI post kateterisasi arteri **pada pediatrik** secara umum dapat dikelola dengan **sukses dengan medikamentosa tanpa intervensi bedah.**

Algoritme Pulseless Post Cath di RSJPDHK



Komplikasi Acute Limb Ischaemia



Nursing Role Of Acute Limb Ischemia After Intervention in Congenital Heart Desease

01 Peran perawat sangat penting dalam setiap tahap intervensi,

02 *nurses care the patient for 24 hours*

03 Perawat harus mempunyai *critical thinking* yg baik

Nursing Role

Before intervention

Find Problem

Kaji Riwayat sebelumnya, Observasi status perfusi (klinis, lab), kolaborasi

Intervention

Find Problem

Observasi status perfusi, *keep warm*, cukupi cairan, kolaborasi *withdrawl catheter if possible*

After Intervention

Find Problem

Observasi status perfusi (klinis, diagnostic), *keep warm*, cukupi cairan, kolaborasi *for treatment*

Evaluation

Before, during and after treatment

Efficacy and effect of treatment → kolaborasi (*assess bleeding sign, lab: APTT,Fib*)

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Formulir Observasi Pre dan Post kateterisasi di RSJPDHK

Catat dan bandingkan antara sebelum dan sesudah intervensi

F.V.3.1/046/A/2015

OBSERVASI TINDAKAN KATETERISASI / INTERVENSI NON BEDAH

Nama Pasien :
Tanggal Lahir :
No Rekam Medis :

(Mohon lengkapi/tempelkan label pasien)

TANGGAL : ..... TINDAKAN: .....

OBSERVASI SEBELUM TINDAKAN:

JAM	Warna Kulit		Akral		Motorik		Edema		Pulsasi		Perdarahan		Keterangan
	1. Merah 2. Pucat 3. Sianotik		1. Hangat 2. Panas 3. Dingin		1. Aktif 2. Pasif 3 Kebas/sakit saat gerak		1. Tidak ada 2. Sedikit 3. Berat		1. Kuat 2. Lemah 3. Tidak ada		1. Tidak ada 2. Sedikit 3. Banyak		
	Kaki Kanan	Kaki Kiri	Kaki Kanan	Kaki Kiri	Kaki Kanan	Kaki Kiri	Kaki Kanan	Kaki Kiri	Kaki Kanan	Kaki Kiri	Kaki Kanan	Kaki Kiri	

OBSERVASI SETELAH TINDAKAN:

JAM	Warna Kulit		Akral		Motorik		Edema		Pulsasi		Perdarahan		Keterangan
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	Kaki Kanan	Kaki Kiri	Kaki Kanan	Kaki Kiri	Kaki Kanan	Kaki Kiri	Kaki Kanan	Kaki Kiri	Kaki Kanan	Kaki Kiri	Kaki Kanan	Kaki Kiri	

Conclusion

- ✓ Penyebab utama ALI pada pediatrik adalah iatrogenik sebagai konsekuensi post kateterisasi maupun post pemasangan Arteri Line.
- ✓ Diagnosis segera ALI pada pediatrik dengan *clinical presentation (pulseless, perishingly cold, pale)* dan pemeriksaan doppler vaskular.
- ✓ Dengan early investigation and prompt treatment, Umumnya ALI pada pediatrik dapat ditangani dengan antikoagulan / trombolitik tanpa intervensi bedah.
- ✓ Peran perawat sangat penting karena perawat bersama pasien selama 24 jam penuh. Perawat harus mempunyai *critical thinking* yang baik dalam pemberian Askep pasien ALI.

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Terima Kasih