
Implementation HAIDI related Hand Ischemia Screening Assessment

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- What is HAIDI

- Risk factors, signs and symptoms

- HAIDI vs STEAL: what is the difference

- Diagnosis

- Classification and treatment

- Prevention

- Our story

- Conclusions

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What is HAIDI:

- ❑ **H**emodialysis **A**ccess **I**nduced **D**istal **I**schemia
- ❑ Caused by locally occurring drop in blood pressure caused by the AVF
- ❑ Increasing high access flow
- ❑ Progressive arteriosclerosis of the arteries in the upper and lower arm

Caused by Local-regional Hypotension but is not Steal!

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Risk factors:

- Diabetes Mellitus
- Age > 60
- Arteriosclerosis
- Smoking
- Previous fistula surgery

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Symptoms:

- Cold, pale/blue fingers
- Pain
- Cramp in the fingers/hand
- Reduced sensation in the fingers/tingling

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Haidi vs Steal:

- ❑ Ischemia: greater chance of ischemia with HAIDI: brachial fistula has a higher access flow with reduced blood supply in the peripheral veins
- ❑ Type of fistula:
HAIDI - upper arm fistula, Steal - lower arm fistula
- ❑ Blood supply:
HAIDI - insufficient supply to the peripheral blood vessels
Steal - reduced blood supply

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Diagnosis:

- ❑ Allen-test (capillary refill > 3sec)
- ❑ Compression test - cutting the venous blood supply to the hand at the anastomosis for a short time and then releasing the blood
- ❑ Angiography/Duplex

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Classification:

HAIDI 1: No complaints, but pale, cold and blue hand

HAIDI 2a: Pain, cramp, altered or reduced sensation, feels cold, tingling. These are acceptable during HD treatment or with intensive use

HAIDI 2b: Unacceptable pain and complaints during HD treatment, hand is still undamaged

HAIDI 3: Pain at all times, also in rest and at home, hand is still undamaged. Hand or finger motor function is affected, and ischemic pain is present in rest

HAIDI 4a: Visible wounds which are irreversible. Small tissue damage, ulcers, etc

HAIDI 4b: Irreversible tissue damage of hand and arm. Loss of function

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Treatment per classification:

- ❑ 1-2a: Conservative treatment = warmth, hand exercises, peripheral vasodilators/reduction b-blocker
- ❑ 2b: Conservative treatment endovascular: angiography, stenoses need to be treated by dotter, stent placement or revision of fistula
- ❑ 3-4a: Operative treatment complemented with conservative treatment
- ❑ 4b: Amputation

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Treatment:

- ❑ Conservative: glove, warmth, hand exercises, medication
- ❑ Endovascular: dotter, stent placement, or recanalisation
- ❑ Banding = placing small band at anastomosis site by flow >1liter
- ❑ RUDI = **R**evision **U**sing **D**istal **I**nflow. Uses a leg vein to create bypass in the lower arm
- ❑ DRIL = **D**istal **R**evascularization and **I**nterval **L**igation - 73-100% successful, reduces flow to < 1L, bypass > 10 cm distal from anastomosis
- ❑ PAI = **P**roximal **A**rterial-venous **I**nflow - placement of artificial implant to increase fistula resistance

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Interventies:

Conservatief: handschoen/warmte pakkingen/
medicatie/hand oefeningen

Endovasculair: dotteren, stentplaatsing of
rekanaliseren

Operatief:

- AVF onderbinding
- Banding
- RUDI
- DRIL
- PAI



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Prevention:

- ❑ Predialysis - measure blood pressure of BOTH arms
- ❑ Finger pressure measurement
- ❑ At risk patients - discuss HAIDI complications
- ❑ Radiological investigations if in doubt of arterial supply
- ❑ Treat any stenosis before fistula construction
- ❑ During operation the anastomosis between vein and artery should be no bigger than 5-7 mm
- ❑ For high risk patients the choice of a Graft would be a better option, since with these patients HAIDI is rarely seen (Scheltinga et al., 2009a)

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Starting point: Our story

Personnel en Nephrologists

- 80 % personnel had no idea what HAIDI is
- Nephrologists also had never heard of HAIDI
- Most know of STEAL syndrome and think it is the same

On the ward:

- No protocols
- No patient information available pre and post
- No reporting in Electronic Patient Dossier

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Aims:

- ❑ All patients with upper arm fistula will be assessed and a hand ischemia score given with the aid of a score chart
- ❑ Patients to be assessed 2 x per year, enables earlier intervention if necessary

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Recommendations:

- ❑ Patients identified to be 'at risk' should have a compression test and/or finger pressure measurement (pre and post operatively)
- ❑ All patients with HAIDI classified with 1-4b classification score
- ❑ 2 x per year score assessment
- ❑ 2 x month Vascular Access meetings
- ❑ Treatment of patients must be a multidisciplinary approach

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 - ❑ Teach the dialysis nurses
 - ❑ Commence a nursing plan for patients with a high risk, and all patients with an upper arm fistula
 - ❑ Develop information folders for patients in predialysis pathway
 - ❑ Pre operative phase - explanation of fistula complications
 - ❑ Develop guidelines and protocols

Startdatum	Type	Naam	Symptomen	Oorzaken	Doelen	Interventies	Notitie	Paraf
30/06/17	Verpleegplan	Observatie / controle toegang tot de bloedbaan (Shunt / Graft)	Onvoldende aanvoer, bij auscultatie een fluittoon hoorbaar, afnemende shuntflow	Oedeemateuze arm, obstructie in de terugvoed van het bloed	verpleegkundige / patient observeert, signaleert en beheerst het risico van problemen Verpleegkundige / patient controleert toegang tot de bloedbaan en weet hoe te handelen bij opgemerkte veranderingen	Informeer de patient over mogelijke complicaties en symptomen van shuntproblemen Eventueel extra shuntflowmeting plannen Overleg met vaattoegangcoördinatoren	Na meerdere interventies wordt een shuntflow van 500 geaccepteerd. Wanneer de shuntflow hieronder komt overleg met nefroloog .JM	JM
03/06/16	Verpleegplan	Patroon 1 : Gezondheidsbeleving : (risico) HAIDE	Nog geen klachten waargenomen	Aanleg bovenarmstelsel > door hoge flow in de bovenarm, verminderde bloedvoorziening in de onderarm/hand en dus mogelijk een verhoogde kans op handscherm	Het signaleren van isemie klachten in de hand/vingers Het tijdig doorverwijzen naar een specialist	Evalueren verpleegplan HAIDE Geef de patient voorlichting over HAIDE en instrueer de patient waar de patient op moet letten Patient word besproken in het vaatverleggroep overleg		SR
25/04/16	Verpleegplan	Patroon 7 : Zelfbelevingspatroon : Angst voor aanprikken voor hemodialyse	Patient geeft aan het aanprikken van de shunt als pijnlijk te ervaren	Pijn bij aanprikken	Patient heeft minder angst of kan met zijn angst omgaan binnen 10 weken na starten van het zorgplan Patient kan na uiterlijk 10 dialyses de oorzaak van de angst verwoorden	Afleiding beden tijdens het aanprikken Als de oorzaak van de angst komt door vaak misprikken: start dan ook het zorgplan misprikken. Bij het signaleren van angst de oorzaak hiervan bespreken met de patient Bij pijn bij prikken verdovingspray aanbieden Indien de patient voor het eerst aangeprikt wordt, van tevoren uitleggen hoe het aanprikken in zijn werk gaat en evt. de naalden tonen waarmee geprikt gaat worden Patient proberen gerust te stellen voordat de shunt wordt aangeprikt. Bied steun en geborgenheid	Hr gaat per mei weer aangeprikt worden. Ziet hier tegenop .JM	JM

van den, De heer G.J.T.
n, De heer N.
Blommestein, De heer F.
Blommestein-Wies de, Mevrouw M.
ant, Mevrouw E.A.H.
Zijveld van, Mevrouw E.W.
M., Mevrouw M.
Koning, Mevrouw G.M.

Administratie
Medisch
D
D
Hemodialyse
Opdrachten
Verpleegkundig
Aramese
Verpleegkundige notities
Verpleegplan
Stappenplannen
Documenten
Verpleegplan
Med. Maatschappelijk Werk
Eloop
Oorgeschiedenis
ab
rafiek
bedrikk

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Our experience:

- ❑ Starting point: no standard recorded checks for hand ischemia
- ❑ Insufficient knowledge of nurses about hand ischemia
- ❑ 60% patients have an upper arm fistula, 20% with symptoms
- ❑ Most complaints were treated conservatively
- ❑ 1 patient with an upper arm fistula and flow of >3500 (symptomless) needed surgical intervention
- ❑ Patients like to have a classification of their fistula problems

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Conclusion:

- ❑ Hand ischemia is a major problem in HD patients
- ❑ Every patient with HAIDI needs to be classified 2 x year according to the 1-4b score
- ❑ 5% of patients with an AV fistula are treated for ischemia
- ❑ > 75% of the HD population experience at least 1 of the 5 symptoms
- ❑ Patients are given a 1-4b fistula score
- ❑ Conservative treatment is helpful
- ❑ Operative intervention preferred: banding by flow >1liter

DRIL by flow <1liter

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No one wants to see this ever