

Dialyse hemodialyse: metronidazol

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Clcr = creatinineklaring, GFR = glomerulaire filtratie snelheid, ke = eliminatiesnelheidsconstante,
Scr = serumcreatinine

Onderbouwend	Bewijs	Effect	Opmerkingen
Somogyi A ea. Disposition and Removal of Metronidazole in Patients Undergoing Haemodialysis Eur J Clin Pharmacol. 1983;25:683-7.	2	50% van de dosis verwijderd door dialyse t _{1/2} : 2.14 h (► GIC: tov 8 uur normaal (IM)) Cl _{dialyse} : 125 ml/min (1.75x the normal body clearance) Regime: 1-malig 500 mg metronidazol (in 2 gevallen 12 u na de vorige dosis) i.v., hemodialyse werd vlak voor injectie gestart en duurde tenminste 4 uur; 4 patiënten op IHD (2x/wk) en 2 patiënten op dagelijkse dialyse Metabolieten: the extraction ratio, amount removed by the dialyser, and other pharmacokinetic characteristics were similar to those of metronidazole.	Auteurs: in patients being chronically treated with metronidazole, either the normal dose should be deferred or another dose administered when dialysis is complete.
Lau AH ea. Hemodialysis clearance of metronidazole and its metabolites. Antimicrob Agents Chemother. 1986;29:235-8.	2	However, owing to the relatively wide therapeutic index of the drug, dosage supplementation may be necessary only in seriously ill patients to ensure therapeutic effect. Extractieratio (metronidazole): 0.65 (cellulose membraan; n=3) en 0.44 (cuprofaan; n=6) Cl (metronidazol): 107 ml/min (cellulose) en 72 ml/min (cuprofaan) Regime: metronidazole 500 mg per dosis i.v. of oraal (n=6) of 750 mg oral 12 hu voor de dialyse en 500 mg i.v bij start dialyse; 9 dialysepatienten. In summary, metronidazole and its metabolites were found to be highly dialyzable with different clearances depending on the specific type of membrane used.	Auteurs: the results of our study indicate that the hydroxy metabolite is also highly dialyzable, and the risk of accumulation in the hemodialysis patient is thus minimized. dialysate flow rate: 575 ml/min blood flow rate: 150-250 ml/min dialysis membrane: regenerated cellulose or cuprophane
Roux AF ea. Clin Pharmacol Ther. 1984;36:363-8. Alleen abstract beschikbaar.	0	Nine patients with acute renal failure who were undergoing dialysis at intervals depending on clinical state were injected with metronidazole, 7.5 mg/kg iv every 8 hr. The plasma t _{1/2} of metronidazole (6.8 hr) is of the same order as that in healthy subjects. M1 and M2 plasma levels increased continuously until the next infusion. Dialysis clearances of metronidazole and its metabolites were about 60 ml/min; 25% of metronidazole in the body at the beginning of hemodialysis was eliminated. The corresponding apparent t _{1/2} s are 3.3 hr (metronidazole), 8.0 hr (M1), and 7.9 hr (M2).	In patients with acute renal disease under hemodialysis, there was no cumulation of metronidazole and its metabolites; hence there is no need for change in dosage regimen.
Kreeft JH ea. Surgery. 1983;93:149-53. Alleen abstract beschikbaar.	0	Five volunteers with normal renal function (NOR) and eight patients with renal insufficiency (REN) were given a single dose of 500 mg metronidazole (MET) intravenously over 26 minutes. Plasma MET concentrations were similar in the NOR and REN groups. The volumes of	We concluded that renal failure does not alter MET disposition but is associated with significant accumulation of the metabolites of MET, possibly requiring a dose reduction. Moreover, an 8-hour hemodialysis eliminates

		distribution for MET—both V1 and Vdss—were similar in the two groups. Moreover, renal insufficiency did not affect the beta half-life (6.5 hours) or the plasma clearance (10.1 L/hr) of MET. Metabolite concentrations peaked at about 12 hours in both groups, but peak acetic acid metabolite (MTAC) was five times higher in the REN group and peak MTOH twofold higher. Plasma clearance of MET by dialysis averaged 4.0 L/hr at 30 minutes, but thereafter ranged from 2.9 to 4.2 L/hr. Clearance of MTAC ranged from 5.8 to 7.8 L/hr and that of MTOH 2.7 to 5.6 L/hr.	approximately 50% of an administered dose of MET.
Gabriel R ea. Br J Surg. 1980;67:553. Alleen abstract beschikbaar.	0	The removal of the anti-anaerobic antibiotic metronidazole has been studied in oliguric patients. The drug and its principal metabolite are rapidly removed by haemodialysis so that the plasma concentration quickly falls below the therapeutic range.	Hence a further dose of metronidazole would be needed after dialysis to restore an adequate plasma concentration.

Overig

Opmerkingen

SPC Flagyl 18-02-20	De plasma eliminatiehalfwaardetijd van metronidazol wordt niet beïnvloed door een verminderde nierfunctie, maar kan verlengd zijn voor de 2-hydroxymetaboliet en de azijnzuurmetaboliet. Tijdens hemodialyse wordt metronidazol geklaard en de halfwaardetijd verkort tot circa 2,5 uur. Gedurende de 8-uur durende periode van hemodialyse worden metronidazol en de metabolieten volledig geëlimineerd. Derhalve dient metronidazol direct na de hemodialyse weer toegediend te worden.
Bouman CSC ea. Discrepancies between observed and predicted continuous venovenous hemofiltration removal of antimicrobial agents in critically ill patients and the effects on dosing. Intensive Care Med 2006;32:2013-9.	9 kritisch zieke IC-patiënten op CVVH kregen 500 mg metronidazol 3dd i.v. toegediend. Er werd geen verschil gezien tussen voorspelde (op basis van ongebonden fractie) en geobserveerde dialyseklaring. Auteurs: for clinical practice dose adjustment according to the predicted CVVH removal provided an as reliable estimate than that according to the observed CVVH removal for metronidazole.

Risicogroep	
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Opmerkingen:

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	Wijziging kinetiek	Effect dialyse	Actie	Datum
Beslissing werkgroep	Ja	Ja	Nee	16 november 2020