

Management Of Ulcus Diabeticum

(Study Of Antibiotics And Diet Counseling Effectivity Based On The Diabetic Neuropathy Scale, Diabetic Neuropathy Examination And Wagner Score)



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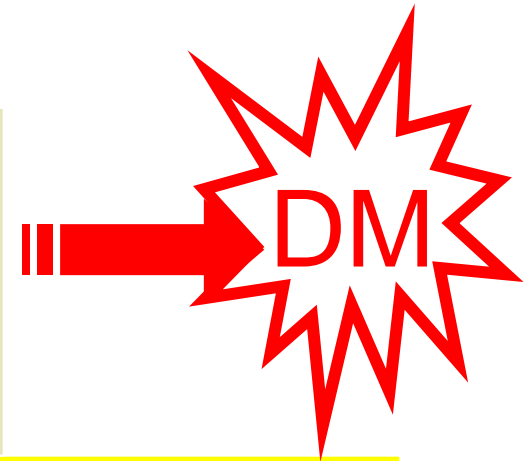
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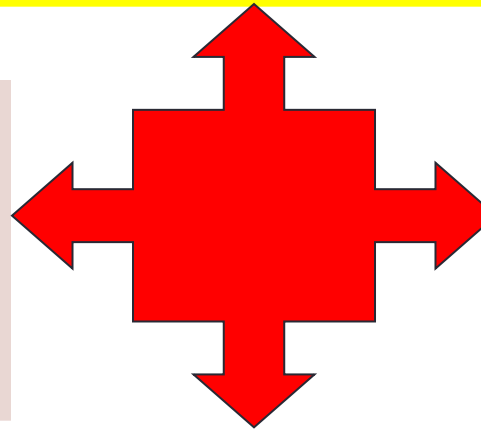
BACK GROUND

- Diet
- Pharmacological Tx
- Exercise
- **Education & Counseling (Patient & Family)**



Role of Antibiotic >< Ulcus DM = ?

- Bacteri ? = Antibiotic ?
- Count of Bacteri ?
- Resistency?
- Sensitify ?
- Echonomic ?



- Still undetermined :
- The most optimal therapy
 - Difference tx between ischaemia / neuropati ulcus

Wound care - sandard :
Antibiotic, debridement, Foot care

(Meara *et al*, 2000 ; Ilyas, 2004 ; Rifki 2004 ; Gan *et al*, 2004)

OBJECTIVE

The study was done to determine the **efficacy of some antibiotics therapy** and the **role of diet counseling** in the management of diabetic ulcers

Materials and Methods:

- A prospective cohort study pre test–post test group design (effectivity of Antibiotics) & Quasi Experimental (diet counselling)
- 38 subjects - no significant differences : age, random blood glucose, duration of DM, duration of ulcer, recurrence rate, DNS score , DNE score, Wagner score
- Antibiotic : Clindamycin, cefadroxil, ceftriaxon, amoxicillin, ciprofloxacin, cefotaxime
- Significantly effective for the treatment ($p > 0.05$)

Variable

Effectivity Antibiotic

- Dependent variable : Antibiotic
- Independent variable :effect based on Therapeutic DNE score, DNE score and Wagner Score

Diet Counselling

Control group : Diet Counselling in Hospital

Experiment group : Diet Counselling in Hospital & Home visite

Dependent Variable : Random Blood Glucose

Score 0 if RBG ≥ 180 mg/dL or ≤ 110 mg/dL

Score 1 if RBG 145 – 179 mg/dL

Score 2 if RBG > 110 – 144 mg/dL

Diabetic Neuropathy Score (DNS)

No	Diabetic Neuropathy Score (DNS) didapat melalui anamnesis sbb :	0	1
1	Does it feel unstable when walking?. It is required, the patient is not impaired vision, hearing, central nervous		
2	Is burning, tingling, pain, numbness / thick in the legs / feet?		
3	What feels like being pricked in the leg or foot?		
4	whether lost feeling or less feeling in the feet or legs?		
	Score Total :		

- The score is 1 If the question is answered yes and the symptoms occur several times in one week for at least the last 2 weeks. The total score is 4
- Interpretation of Results:
 - Score 0 → no diabetic neuropathy
 - Score 1 to 4 → diabetic neuropathy

Diabetic Neuropathy Examination (DNE) :

No	Component	Examination	0	1	2
A	Muscle Strength	1. Quadricep femoris: extensi of knee			
		2. Tibialis anterior: dorsofleksio of foot			
B	Reflex	3. Refleks of achiles joint			
C	Sensibility of second finger (foot)	4. Needle PrickTusukan jarum,			
	Sensitivitas of thumb	5. Needle PrickTusukan jarum,			
		6. Touching			
		7. Vibrate perception			
		8. Joint position			
		Total Score			

- Examination only in the lower limbs right / left alone The max score = 16 and a diagnosis of neuropathy when score > 3. Scores ranged from 0-2 with the following criteria:
- Score 0 = normal,
- Score 1 = deficit mild / moderate, 3-4 muscle strength, reflexes and sensitivity down
- Score 2 = severe deficits, muscle strength 0-2, reflexes and sensitivity negative

Wagner :

- (0) intact
- (1) ulcer – superficial
- (2) ulcer – deep – tendo / bone
- (3) ulcer – deep – tendo / bone with infection
- (4) ulcer with gangrene – one to two toes
- (5) ulcer with wide gangrene – whole foot



(Waspadji, 2000)



Neurological Examination

“home visit”

COUNSELING DIET DM

“ Patient and Family”



“home visit”

RESULT : Responden Characteristics

Characteristics*	Min.	Max.	Mean	Std. Deviation
Age (year)	37	78	58.81	10.103
Random Blood Glucose	42.00	532.00	266.1905	171.21437
DM Course (Year)	.00	16.00	5.0500	4.63936
Ulcus DM Course	1.00	12.00	4.4524	3.70103
Ulcus recurrent rate	1	5	2.05	1.050
DNS score	0	12	3.65	2.907
DNE score	1	4	3.15	.875
Wagner score	1	4	3.05	.826

Baseline Characteristic – subjects n = 38

Factors influenced to treatment based on DNS, DNE, Wagner score

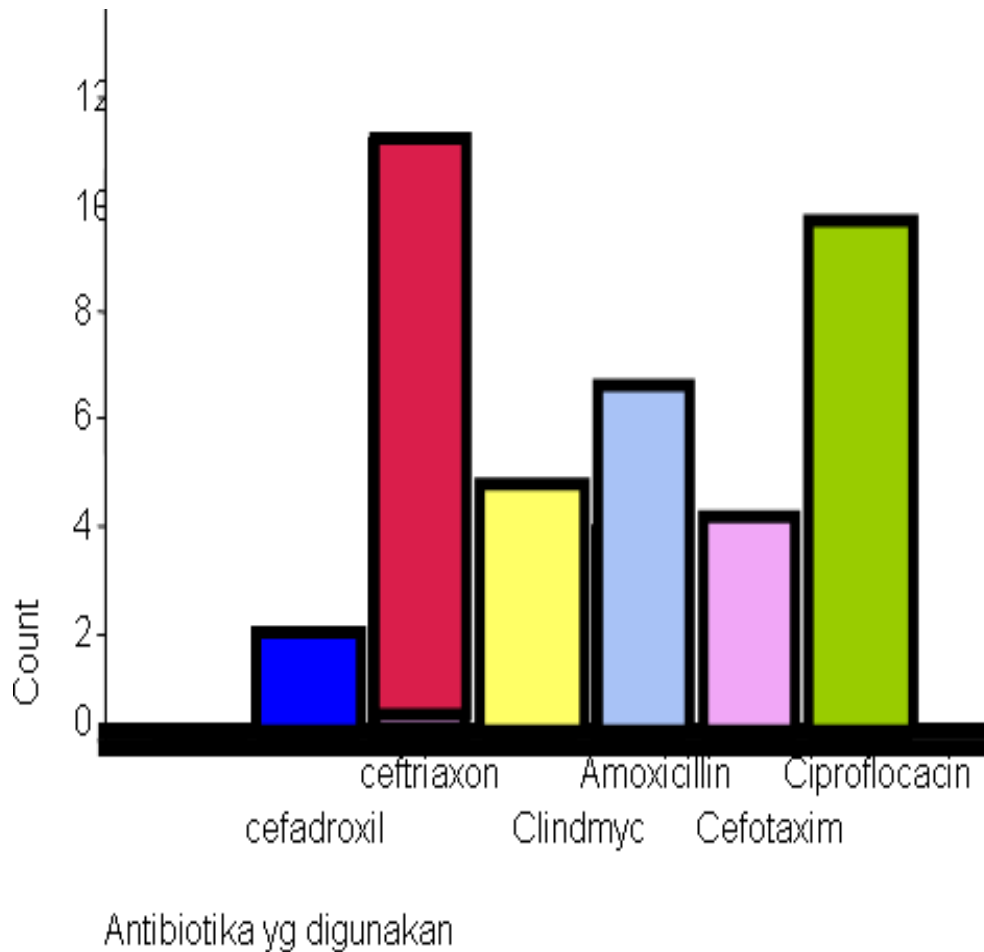
No	Factors	<i>P</i> (<0,05)		
		DNS	DNE	Wagner
1	Age	0.229	0.210	0.124
2	DM Course (Year)	0.136	0.340	0.560
3	Ulcus DM Course	0.481	0.210	0.481

These factors do not affect the DNS, DNE and Wagner

RESULT : ANTIBIOTICS EFFECTIVITY

RESULT

Antibiotics



Tabel 4. Macam antibiotik yang digunakan

Jenis Antibiotik	Jumlah	%
Clindmyc	5	13.2
Cefadroxil	2	5.3
Ceftriaxon	11	28.9
Amoxicillin	7	18.4
Ciproflocacin	9	23.7
cefotaxime	4	10.5
Total	38	100

Effectivity of Antibiotics

Antibiotics	Good	%	Bad	%	Total subjects
Clindamycin	2	40%	3	60%	5
Cefadroxil	1	50%	1	50%	2
Ceftriaxon	5	45%	6	55%	11
Amoxicillin	3	43%	4	53%	7
Ciprofloxacin	6	67%	3	33%	9
Cefotaxime	2	50%	2	50%	4
Total	19		19		38

Effectivity of Antibiotics based on DNS

Antibiotics	DNS		
	RR	95% CI	<i>P</i>
Clindamycin	1,432	-0,8475 – 4,0475	0,245
Cefadroxil	0,511	-4,0475 – 0,8475	0,315
Amoxicillin	0,450	-2,1700 – 1,2557	0,294
Cyprofloxacin	1,800	-1,0094 – 2,2539	0,514
Cefotaxim	0,280	-1,8124 – 2,1124	0,871
Ceftriaxon	1	-	-

Effectivity of Antibiotics based on DNE

Antibiotics	DNE		
	RR	95% CI	<i>p</i>
Clindamycin	2,571	-1,0901 – 2,6901	0,210
Cefadroxil	0,961	-2,6901 – 1,0901	0,311
Amoxicillin	1,200	-1,8371 – 2,0970	0,881
Cyprofloxacin	1,808	-1,5045 – 2,3215	1,000
Cefotaxim	2,306	-2,3154 – 2,9564	0,502
Ceftriaxon	1	-	-

Effectivity of Antibiotics based on Wagner

Antibiotics	Wagner		
	RR	95% CI	<i>p</i>
Clindamycin	2,291	-1,6200 – 3,0200	0,141
Cefadroxil	1,025	-1,0200 – 1,6200	0,210
Amoxicillin	0,720	-0,5524 – 1,2953	0,410
Cyprofloxacin	2,880	-0,1911 – 3,5689	0,099
Cefotaxim	0,720	-1,0084 – 1,1084	0,410
Ceftriaxon	1	-	-

Antibiotics Effectivity

- Cefadroxil, ceftriaxon, amoxicillin, ciprofloxacin and cefotaxime → were not influenced significantly effective for the treatment ($p > 0.05$)
- Only three antibiotics :
 - Clindamycin (RR=2.571),
 - Ciprofloxacin (RR=2.880)
 - Cefotaxim (RR=2.306).
- has RR > 2, it can be considered effective clinically.

RESULT : DIET COUNSELLING

HOMOGENITY BETWEEN TWO GROUPS

	Control group (without home visit)	Experiment group (with home visit)	<i>p</i>
Age	56,3	60,2	0,584
Random Blood Glucose	274,5	258,4	0,408

There is no difference age and RBG between two groups
($p > 0,05$)

Relationship dietary habit and dietary counseling history with DM ulcer recurrence rate*)

	Ulcus Recurrence (<i>p</i>)
Dietary habit	0,058
Dietary counseling history	0,047

*)Multivariate linear regression test

Dietary habit & Dietary counseling affect the ulcer recurrence rate of DM before experiment

Effect of dietary counseling through home visits to the Random Blood Glucose*)

	Control group (without home visit)	Experiment group (with home visit)	<i>p</i>
Random Blood Glucose	217,25 ± 91,32	131,5 ± 39,79	0,029

*)Mann-Whitney test

DISCUSSION

- Age, DM Course, Ulcus DM course are not significantly correlated to therapeutic effect.
- Antibiotics used are not correlated to therapeutic effect.
- Meara et al (2000) concluded that the role of antibiotics in the management of diabetic ulcers remains unclear.
- An existensi of kind of bacteria play an important role in wound healing.
- Some studies show a positive relationship between the **number of bacteria and the healing time** , while other studies show no relationship

DISCUSSION

FACTS :

1. Age of respondent : mean $58,81 \pm 10.10$ suggests that the risk of ulcers in the **elderly age (> 55 years)**. In Scotland, the average age of patients with ulcers DM mean $69.9 + 11.8$ (Schofield, et al, 2006)
2. DM ulcer patients have blood sugar levels $266.19 + 171.21$ mg / dL → **bad control condition**
3. Already suffering from DM $5,05 \pm 4,64$ years: do not know if they were sick (45%)
4. Admitted to hospital : the ulcer had suffered $4.45 + 3.7$ weeks (**too late**)

DISCUSSION (cont...)

5. The success of diet counseling at home proved to be meaningful rather than just in hospital

Suggestions (for home visit counseling):

1. Make sure before, that family members stay at home when counselor came
2. Counseling involving family members is important because most people with diabetes ulcers are elderly and in conditions of many physical and psychological disorders

Conclusion

- Cefadroxil, Ceftriaxon, Amoxicillin and Cefotaxime were not influenced significantly effective for the treatment ($p > 0.05$)
- Three antibiotics clindamycin ciprofloxacin cefotaxim can be considered effective clinically.
- **Diet counseling** had a significant result to control random blood glucose (RR= -2,139 ; $p.0,032$) and also to reduce the number of ulcus recurrent (RR= -2,157, $p.0,047$)

Thank you for your attention