

Clinical Response to Cyclosporine A treatment in severe leprosy Type I Reaction (TIR) patients in Ethiopia and Nepal

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Introduction

- Type I reaction is an important cause of nerve damage in leprosy
- Prednisolon is the principal treatment but is effective only in 30-60 % of patients
- There is a need for new treatment for leprosy reactions



Cyclosporine A

- Derived from fungal metabolite
- It is a lipophilic polypeptide
- It has potent immunosuppressant action
 - It selectively inhibits the activation of CD4 T cells and expression of cytokines such as Interleukin2 (IL-2)



Materials and methods

- Patients were recruited from:
 - Green Pastures Hospital (GPH) Nepal and
 - The All Africa Leprosy TB, Rehabilitation and Training Center (ALERT) Ethiopia
- Those with Severe TIR are enrolled



Definition of sever TIR

(for the study)

- Palpable swelling of skin lesion associated with redness & ulceration of reactionary lesions
- Severe sign of nerve involvement is pain, tenderness, nerve function drop of more than 2 points in single nerves by MRC score



Inclusion criteria-

- Newly diagnosed leprosy patients or patients who have already treated with MDT
- Aged 16 -65
- Those with normal laboratory tests-LFT, RFT
- Greater than 30 kg in weight
- Those who have not been on prednisolon, non-steroidal ant inflammatory drugs and thalidomide for the last three months



Exclusion criteria

- Severe active infection including tuberculosis
- Pregnant or breast feeding women
- Renal failure, abnormal liver function test
- Hypertensive
- Patient who has been on prednisolon, non-steroidal antinflammatory drug
- Not wiling to come for follow up



Laboratory tests done

- **Laboratory assessments-** Done every fortnight for the first 2 months, then at weeks 12, 16, and 24(From base line)
 - Complete blood count(CBC) including differential
 - Serum creatinine
 - Urine for protein and glucose
- **LFT, CBC, Serum creatinine-** before initiation of therapy
- **Blood CyA level-** done on week 2,4,6,8, and 12



Clinical assessment

- Clinical assessment carried out at week 2, 4,6, 8, 12, 16 & 24
- Assessment includes Clinical severity score (CSS) and general examination
- Clinical severity score (CSS) includes
 - Skin signs (ranges 0-6)
 - Nerve pain and tenderness (ranges 0-6)
 - Sensory testing (ranges 0-18)
 - Voluntary Muscle testing (ranges 0-30)



Cyclosporine dose used

- CyA 5 mg/ kg/ day given to all patients in the beginning in addition to prednisolon 40 mg for the first 5 days & CyA continued for 12 weeks
- If there is clinical deterioration dose of CyA increased to 7.5 mg / kg



Baseline demographic data

Baseline variables	GPH patients n=10	ALERT patients (n=33)
Age	36(20-61)	34 (18-62)
Women: men	1:4	1:2
New leprosy diagnosis	6(60%)	23(70%)
No neuritis	0	0
No nerve function impairment	2(20%)	2(6%)
Acute nerve function impairment (< 6 months)	5(50%)	12(36%)
Chronic nerve function impairment(> 6 months)	3(30%)	19(58%)



Clinical outcome during and after treatment

a) Clinical outcome in all Ethiopian patients

Clinical outcome	SS (n=33)	NPT (n=33)	Acute ST (n=12)	Chronic ST (n=19)	Acute VMT (n=12)	Chronic VMT (n=18)
Number(%) Improved	28 (85)	15 (45)	2(17)	11(58)	6(50)	10(56)
Number(%) Not improved	5(15)	18(55)	10(83)	8(42)	6(50)	8(44)
Number (%) lost for follow up	2	0	0	1	0	1
Number (%) maintained for follow-up	15(58)	5 (33)	0(0)	5(50)	2(33)	4(40)
Number (%) relapsed	11(42)	10 (67)	2(100)	5(50)	4(67)	6(60)



Clinical outcome during and after treatment

b) Clinical outcome in all Nepalis patients

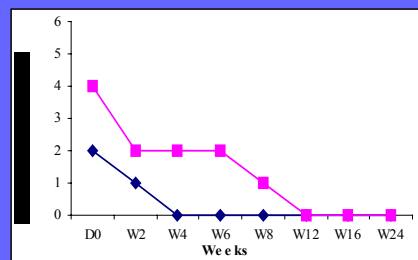
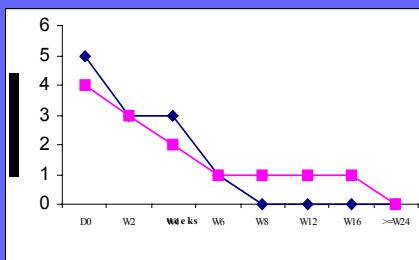
Clinical outcome	SS (n=8)	NPT (n=8)	Acute ST (n=4)	Chronic ST (n=2)	Acute VMT (n=6)	Chronic VMT (n=2)
Number(%) Improved	7(88)	6 (75)	3(75)	2(100)	3(50)	0(0)
Number(%) Not Improved	1(11)	2(25)	1 (25)	0(0)	3(50)	2(100)
Number (%) maintained for follow-up	5(71)	5 (83)	1(33)	1(50)	3(100)	0(0)
Number (%) relapsed	2(29)	1 (17)	2(67)	1(50)	0(0)	0(0)



Clinical outcome for Ethiopian and Nepali patients on CyA

a) Skin signs (Blue diamond-Nepali)

b) NPT

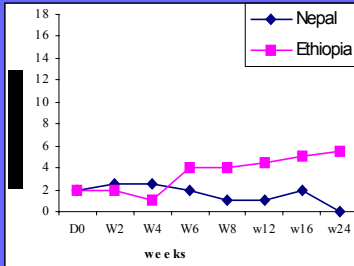


a. Median skin signs
b. Median nerve pain and tenderness

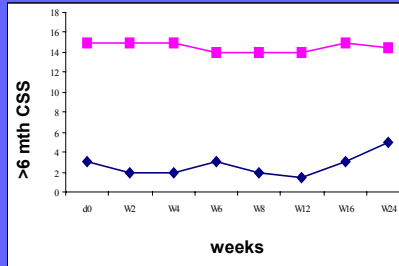


Clinical outcome for Ethiopian and Nepali patients on CyA

c) Acute ST



d) Chronic ST

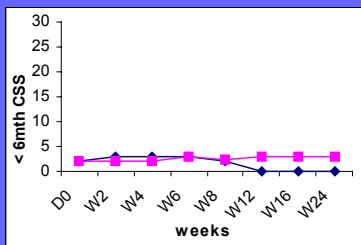


c. Median acute sensory nerve impairment
d. Median chronic sensory nerve impairment

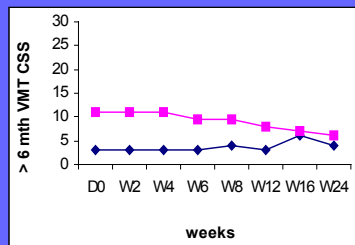


Clinical outcome for Ethiopian and Nepali patients on CyA

e) Acute VMT



f) Chronic VMT



e. Median acute motor nerve impairment
f. Median chronic motor nerve impairment



Discussion

- CyA has been used in T1R
- Both Nepali & Ethiopian patients responded to CyA treatment as monotherapy
- The Ethiopian patients showed high recurrence
- CyA can be used as monotherapy in prednisolon resistant cases
- Side effects are minimal
- Dose of 5mg/kg is enough for Nepali patients while the Ethiopians need higher dose



Conclusion

- CyA monotherapy can be an effective treatment of sever T1R with few adverse effects
- Dose of 5 gm/kg is enough for Nepalīs patients while Ethiopians need higher dose
- More studies should be done comparing CyA to prednisolon, and randomized controlled trial is needed

