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Two Weeks VS Four Weeks Use of Atorvastatin to Reduce Hyperlipidemia in Children with Refractory Nephrotic Syndrome: Which One is Better?

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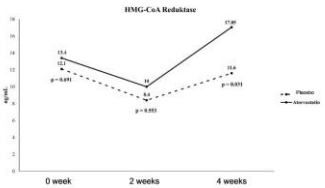
Objectives : Persistent hyperlipidemia in children with refractory nephrotic syndrome (NS) is a risk factor for endothelial dysfunction, cardiovascular disease and aggravating glomerulosclerosis. There is no official consensus regarding the management of hyperlipidemia in NS. Statin which is often used to reduce cholesterol levels has a dualism effect, in long-term use, it could cause an increase in HMG-CoAR. This research analyze the effects of atorvastatin administration in different durations on HMG-CoAR and LDL cholesterol levels in refractory NS children.
Methods : This is an experimental, randomized, double-blind clinical trial in refractory NS children aged 6-18 years with LDL cholesterol ≥130mg/dL in Dr. Soetomo Academic General Hospital, Indonesia. The patient will be randomized to atorvastatin and placebo group in 5 mg dose for ages 6-10 years and 10 mg dose for ≥10 years with two different durations of administration, 2 weeks and 4 weeks administration. Enzyme-linked Immunosorbent Assay (ELISA) was used to measure HMG-CoAR, while LDL was measured by enzymatic end-point method. Data were analyzed using the Mann-Whitney test and independent T-test.
Results : Forty children with NS and hyperlipidemia were included in the study, 25 (63%) had steroid-resistant NS, 9 (22%) had frequently relapsing NS and 6 (15%) had steroid-dependent NS. The levels of HMG-CoAR increased significantly in the atorvastatin group after 4 weeks of treatment (P<0,05) whilst the LDL cholesterol levels decreased significantly (p<0,05) in the atorvastatin group after 2 weeks of treatment and showed no decrease in the 4 weeks group.
Conclusions : Giving atorvastatin in refractory SN children with hyperlipidemia decreases LDL cholesterol levels after 2 weeks of treatment nonetheless increases levels of HMG-CoAR after 4 weeks of treatment. Evaluation and adjustment of doses every 2 weeks is needed.

HMG.jpg

HMG-CoAR *Levels*	*Group*		p
	Placebo	Atorvastatin	
Before Intervention	12,10	13,40	0,691
2 weeks after intervention	8,40	10,00	0,553
4 weeks after intervention	11,60	17,05	0,031*



HMG.jpg

LDL *Levels*	*Group*		p
	Placebo	Atorvastatin	
Before intervention	178,45	173,15	0,524
2 weeks after intervention	147,75	117,75	0,017*
4 weeks after intervention	143,85	119,85	0,086