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Here are abstracts that got accepted at Pediatric Academic Society and Eastern Society for Pediatric Research for academic year 2014-2015.

-Dr. Sarita Dhuper and team

Contents

Title: Parental Characteristics and Views that Predict Compliance to a Lifestyle Modification Program (LMP) for their overweight children.

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Background: The complex biological, psychological, cultural and social web of causation of childhood obesity eludes standardized treatment protocols. The future of obesity management largely depends on prevention and control by personalized lifestyle modification. However, children are dependent on their parents who act as gatekeepers to influences both inside and outside of home. It is essential to take into account parent viewpoints on their child's weight, health status and their readiness to effect change prior to enrollment in a long term program.

Objective: To evaluate parental characteristics and views regarding their own and their child's weight and readiness to make nutritional and physical activity changes to the long term compliance in a LMP

Design/Methods: The Live Light Live Right(LLLR) program is a 4 part LMP which includes expert medical evaluation, nutritional and behavioral counseling, supervised exercise programs and individual treatment plans. After an initial evaluation, parents who were interested in committing to the LMP program were interviewed and completed a Parental Readiness Questionnaire(PRQ). This was created by the LLLR team, and consists of 47 questions evaluating parental background, lifestyle, views on weight and health, and readiness to change. Analysis was performed and compared for 3 groups based on low, moderate and high compliance for number of clinic visits (≤ 2, 3-4,≥5) and exercise program attendance (none, < or /> 50%)

Results: 666 families were followed for a mean of 24 months, range(0.2-122). Of these 60% never attended a single exercise class. Families with longer follow up and higher compliance showed a significantly higher response scale to their readiness to make nutritional changes, were more positive about their own and their child's health and body image but more concerned about their child's weight. There were no differences in their own exercise, education and income levels among groups. None of the factors assessed were related to exercise compliance.

Conclusions: Parents who were more concerned about their child's weight but at the same time positive about their own and their child's body image and health were more compliant with the clinic visits. Understanding factors that promote long term compliance for different components of a LMP in different populations is essential for both the success of a program and for resource allocations.

Title: Assessing Physical Fitness In The Moderate vs Severely Obese Children Using The NYC Fitnessgram

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Background: Physical inactivity is the 4th leading cause of death and major health effect worldwide. The NYC Fitnessgram was designed to provide physical fitness assessment, activity promotion, and a feedback system for students, teachers, and parents to promote life long activity and optimal health. The Fitnessgram uses criterion referenced standards to define a range of fitness scores designated as Healthy Fitness Zone(HFZ) associated with good health. Overweight and obese students are known to be less physically fit than normal weight students. However differences between those with moderate or severe obesity is still not known.

Objective: To compare measures of fitness in children of moderate vs severe obesity using the NYC Fitnessgram protocol.

Design/Methods: We assessed fitness using 1)PACER(aerobic capacity),2)Curl-up 3)Trunk Lift4)Push-up(Muscular Strength and Endurance) and Average Sit and Reach(Flexibility). The mean fitness parameters and HFZ for each test were compared for the moderate BMI<35 kg/m2 vs Severe Obesity>35 kg/m2 for children enrolled in our Live Light Live Right community based exercise program.

Results: The moderate obesity group have significantly higher muscular strength and endurance as well as aerobic capacity compared to severe obesity group. In both groups nearly 50% did not meet HFZ std for most parameters.

Tables:

	Mild obese(n=129)	Morbid obese (n=58)	Sig.
Parameters	Mean	Mean	
Resting HR/min	91.7	96.3	0.01*
Peak HR	154.4	160.2	0.10
Curl up(#)	10.2	7.7	0.15
Trunk lift highest in	8.0	8.6	0.03*
Push-ups 60s	8.3	6.9	0.28
Push-ups Mod(#)	8.6	5.7	0.06
Avg sit reach L (in)	8.2	7.3	0.06
Avg sit reach R (in)	8.3	7.3	0.05*
Flexed arm hang (sec)	3.2	1.4	0.06
Modified flexed arm hang (sec)	6.7	3.2	0.00*
Modified pull up(#)	3.3	2.0	0.01*
Pacer	13.6	11.0	0.05*

HFZ- Std Met(Y/N)		L Shoulder Stretch(%)	R Shoulder Stretch(%)	CU(%)	PU(%)	Avg Sit Reach L(%)	Avg Sit reach R(%)
Mild	N	39	32	76	56	64	64
Obese	Y	61	68	24	44	36	36
Morbid	N	49	44	90	67	72	71
Obese	Y	51	56	10	33	28	29
*: p<0.05		0.12	0.07	0.14	0.03*	0.42	0.37

Title: Clinical Variables and Effect of Ductal Shunting and Inotropes on the SVC flow in VLBW Infants

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Background: Functional echocardiogram(Fnecho)is being increasingly used to assess the cardiovascular function in Very Low Birth Weight (VLBW)babies. Superior Vena Cava (SVC) flow is now considered to be a superior marker of cardiac output in compromised or hypotensive infants. The variables affecting SVC flow in these infants with changing hemodynamics need to be studied in order to interpret the values in a clinical setting. Effects of inotropes and significant shunting at the ductus on SVC flow also needs further study.

Objective: To assess the clinical factors and effect of inotropes and ductal shunting on SVC flow in VLBW infants over the first week of life.

Design/Methods: Observational cohort study done at Brookdale University Hospital and Medical Center. Echo were performed as per unit protocol when clinically indicated to assess for a Patent Ductus arteriosus(PDA) or cardiac function for hypotension on inotropes. SVC flow was calculated (ml/kg/min)=(velocity time integral x (π x (mean SVC diameter diameter2/4) × heart rate)/body weight, (Kluckow et al.,2000). Clinical and echocardiographic variables data was collected from a chart review and compared by day of echo and inotrope use, using SPSS version 20.

Results: 60 echos were obtained. On day 1 and 2, infants on inotrope group(N=27) had a lower SVC as compared to the non-inotrope group(N=33) and a lower mean BP. By day 3 both groups had similar SVC flow rates. Significant positive correlation was seen between SVC flow and birth weight, mean BP and echo based shortening fraction (SF) which is a measure of systolic function. SVC flow was negatively correlated with PDA size. Multivariant regression analysis showed an independent negative association between SVC flow and mean BP and PDA size and a positive association with systolic function. An increase of 1mm in PDA size was associated with 22.38 ml/kg/min decrease in SVC flow. While 1 mmHg increase in mean BP was associated with 2 ml/kg/min increase in SVC flow and 1% increase in SF increases SVC flow by 2.8ml/kg/min.

Conclusions: In hemodynamically unstable VLBW infants, SVC flow is a good adjunctive measure to assess effective cardiac output and is significantly lowered by a PDA shunt, and the presence of hypotension even when on inotropes. Adding SVC flow measurement to serial echos in compromised infants may help tailor the management and titration of inotropes more effectively to reach an optimal SVC flow level especially in the first 48 hours.

Title: Increasing prevalence of severe obesity in a high risk inner city cohort and comparison with the NHANES data 2011-2012

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Background: Although the national data shows that there is a plateau in the prevalence of obesity over the past decade, severe obesity is the fastest growing category now affecting 4-6% of youth. These patients have both immediate and progressive long term complications and respond poorly to standard lifestyle modifications.

Objective: To determine prevalence of moderate and severe obesity in predominantly Non-Hispanic Black children (NHB) from Brownsville and East NY, in comparison to the 2011-12 national NHANES data based on race.

Design/Methods: Data was analyzed from a national representative sample (NHANES 2011-12) of 3365 children age 2-19 and from 10,129 patients seen at Brookdale Hospital, NY using EPIC EMR in 2013-14 . Analyses were performed using the survey estimation routines in IBM SPSS version 20.0.

Results: See table 1. For NHANES the prevalence of class 2 obesity is highest for NHB age 12-19 and class 3 obesity in both the age groups.

2011-2012 Data	BMI (BMI < 85th%ile)				Overweight (BMI 85th-95th%ile)				Class 1 Obesity (BMI >95th- 120% of 95th%ile)				Class 2 Obesity (BMI 120%-140% of 95th%ile)				Class 3 Obesity (BMI >140% of 95th%ile)			
	NHANES		Brookdale		NHANES		Brookdale		NHANES		Brookdale		NHANES		Brookdale		NHANES		Brookdale	
Total Prevalence (%)	66.3		61.6		14.8		16.3		11.7		14.3		4.8		5.5		2.4		2.4	
Age	2-11	12-19	2-11	12-19	2-11	12-19	2-11	12-19	2-11	12-19	2-11	12-19	2-11	12-19	2-11	12-19	2-11	12-19	2-11	12-19
	68.7	62.2	63.2	59.1	13.9	16.2	15.4	17.8	10.8	13.4	14.7	13.7	4.4	5.4	4.8	6.5	2.2	2.7	2	3
Hispanic	59	59.8			17.7	17.7			14.7	15.4			6	5.4			2.6	1.7		
White	70.3	66.2			15.9	13.2			8.8	14.7			3.9	3.4			1.1	2.6		
NHB	69.7	56.4			12	18.2			10.8	12.5			4.1	8.1			3.4	4.9		
Asian	86.2	74.1			6.7	13.5			5.4	9.4			1.7	2.4				0.6		
Multiracial	77	60.3			9.8	17.2			6.6	13.8			4.1	6.9			2.5	1.7		

Title: Lipid Profile Comparisons in Mild, Moderate And Severe Obesity From NHANES Database 2001-2012 For Children 2-19 Years Of Age.

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Background: Severe obesity is an emerging public health problems in children affecting 4-6% of the population. It is generally assumed that the more severe the obesity the more severe the dyslipidemia and metabolic aberrations. However some adult studies have shown the contrary.

Objective: To determine the variations of lipid profile with increasing severity of obesity among children from a national representative sample (NHANES)

Design/Methods: Data was analyzed from a national representative sample of 12,128 children ages 2-19 from the 2001-2012 (NHANES). Analyses were performed using IBM SPSS version 20.0. BMI categories were classified as Normal(NW) (BMI < 85th%ile), Overweight (OW)(BMI 85th- 95th%ile), Obesity as class 1(BMI>95th-120% of 95th%ile), Class 2(BMI 120%-140% of 95th%ile), and Class 3(BMI>140% of 95th%ile). Mean comparison were made for Total Cholesterol (TC), Triglycerides (TG) LDL and HDL levels among different BMI categories.

Results: Lipid Profile Variations Between BMI Groups:

BMI	NW	OW	Class 1	Class 2	Class 3
TC(Mean±SD)	159.5±28.1*	164.5±30.4	167.3±32.1	168.1±34.1	168.7±31.2
TG(Mean±SD)	76.9±41.9*	93.2±56.1*	110.6±125.4[Ω]	121.6±125.4[†]	111.9±84.7
LDL(Mean±SD)	88.1±24.9*	94.9±27.0	97.2±28.7	100.2±28.3[†]	101.0±27.7
HDL(Mean±SD)	56.2±12.8*	51.6±11.9*	47.4±11.2*	44.0±10.3	41.8±9.6
*p<0.05 vs All Groups, Ω p<0.05:Class 1 vs OW, †p<0.05:Class 2 vs OW, All Values Expressed in mg/dl					

• TC, TG, LDL was significantly lower and HDL higher for Normal BMI compared to OW and all Obesity subgroups.
• There was no difference in TC, TG, LDL levels among Class 1, 2 and 3 Obesity subgroups.
• Significant decrease in HDL was noted with increasing BMI categories except between Class 2 and Class 3, where no difference in HDL was noted.

Conclusions: This study shows that TG levels do not increase between class 1,2 and 3(very severe obesity) in children. Triglycerides levels in fact were in lower class 3. HDL levels were also similar in class 2 and class 3 obesity. Reasons for this ceiling effect of dyslipidemia in severe obesity is unknown but may be related to the differences in the ratio of subcutaneous vs visceral fat distribution, and genetic variations in insulin response and effects on Lipoprotein Lipase levels. Further studies are needed to elucidate causes and to track long term outcomes between moderate and very severe obesity.

Title: Lipid Profile Variations Based On Race And Obesity Subcategories From NHANES Database 2001-2012 From 2-19 Years Of Age.

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Background: Obesity and dyslipidemia are strongly linked to the early onset of atherosclerosis in children. It has been reported that Non Hispanic black(NHB) have better lipid profiles compared to Non Hispanic white(NHW) and Mexican American(MA). However, if this variation is present in severe obesity among ethnic groups is not well characterized.

Objective: To determine the variations of lipid profile with race and increasing severity of obesity.

Design/Methods: Data was analyzed from a national representative sample(NHANES 2001-2012) of 12,128 children ages 2-19. Analyses were performed using IBM SPSS version 20.0. Groups were classified as NW(BMI < 85th%ile), OW(BMI 85th- 95th%ile), Obesity as class 1(BMI>95th-120% of 95th%ile), Class 2(BMI 120%-140% of 95th%ile), and Class 3 (BMI>140% of 95th%ile). Mean total cholesterol(TC), Triglycerides(TG), LDL and HDL levels (mg/dl) were compared by race and BMI categories.

Results: Lipid Profile Variation in different ethnic Groups:

		NW(Mean±SD)	OW(Mean±SD)	Class 1(Mean±SD)	Class 2(Mean±SD)	Class 3(Mean±SD)
TC	NHB	161±29*	164±29	164±32	168±35	166±30
	NHW	159±29	166±32	170±33	169±36	169±35
	MA	157±27	165±31	168±32	167±32	171±30
TG	NHB	63±30*	70±32*	89±105*	90±43*	93±43*
	NHW	87±49	104±66	120±74	122±69	172±110
	MA	79±39	106±59	122±74	134±86	150±123
LDL	NHB	89±25	95±26	96±31	106±32	100±25
	NHW	89±25	96±31	101±32	97±28	101±27
	MA	86±24	95±26	96±24	97±25	102±23
HDL	NHB	60±13*	56±12*	51±12*	47±11*	45±10*
	NHW	54±12	50±11	46±11	42±10	36±5
	MA	55±12	50±12	46±11	42±9	39±8
*p<0.05:NHB vs MA,NHW in all cateogories, All values measured in mg/dl.						

- For NW, NHB has better lipid profiles compared to NHW and MA.
- There was no significant difference in LDL in all Obesity subgroups by race.
- Significantly higher TG levels seen for MA and NHW compared to NHB in all BMI categories
- Significantly lower HDL for the MA and NHW compared to NHB in all Obesity subgoups.
- No Significant difference in TG and HDL levels between MA and NHW in all Obesity subgroups.

Conclusions: NHB youth have lower TG and higher HDL levels compared to MA and NHW at all levels of obesity. This may lead to underestimation of the metabolic syndrome in the NHB with severe obesity. Causes are linked to race related variations in the level and effect of insulin on Lipoprotein Lipase but more research is needed in this area.