MEDICAL EVALUATION OF A MOLDY APARTMENT COMPLEX

Scott W. McMahon, MD

Spring Break With Data

April 29th, 2022

DISCLOSURES

- I am the owner of Whole World Health Care and The Oasis.
- I am an equity partner in CIRSx, LLC.
- I provide legal work and testimony as an expert, on behalf of both plaintiffs and defendants, in mold-based illness related litigation


Whole World
health care


THE
OASIS
NEW MEXICO


CIRSx
CHRONIC INFLAMMATORY
RESPONSE SYNDROME

ENVIRONMENT

- Adjoining apartment buildings
- 40 and 55 apartments total
- 84 clients evaluated (78 in person)
- 45 of 95 apartments evaluated
- Greg Weatherman performed an independent environmental evaluation of both buildings

METHODS

- Evaluation performed
  - History
  - Physical exam
  - Labs
  - VCS

METHODS

- Multisystem illness screening tool created
  - Attorney or staff to administer
  - Intended to limit persons further evaluated
- Secondary screen – online VCS testing
  - Also, to be administered by attorney or staff
- If screen(s) were abnormal, further evaluation planned
  - History
  - Physical exam
  - Labs
  - VCS

METHODS

- Evaluation performed
  - History
    - Via in person, phone VCS
    - Demographics
    - Sx
      - Standard 37 diagnostic Sx – developed while at Apt?
      - Others?
    - PMH
    - Environmental
      - Length of time in the Apt
      - Visible mold
      - Musty smell
      - Known Hx of water damage

METHODS

- Evaluation performed
  - Physical exam – in person
    - BP, pulse, RR
    - Standard 7 findings
      - Facial pallor
      - Red sclerae
      - Cool hands/feet
      - Flexibility bordering on hyperflexibility
      - Red Cheeks
      - Tremors
      - Dominant shoulder weakness
    - HEENT, heart, lungs, abdomen, extremities, skin
    - Picture

METHODS

- Evaluation performed
  - Labs
    - HLA
    - TGF-β1
    - ADH/osmolality
    - MARCoNS not performed
    - VIP
    - MMP-9
    - ACTH/cortisol
    - MSH
    - C4a
    - ACLA/AGA
  - VCS – screening (attorney or staff) and in person

METHODS - HURDLES

- Many difficulties with executing the plan
- I was a consultant
  - Not my show, little ability to oversee from >1000 miles away
- 3rd parties subcontracted to do some of the work
  - No contact with them before, during or after
- Instructions not followed by 3rd parties
  - Many, many lab mess ups
  - Initials for client names
  - Most CIRS clients with only 6 or 7 labs drawn
    - Hard to get 5 abnormals when only 6 or 7 obtained

METHODS - HURDLES

- Clients with distrust of the system
- Clients did not always follow the established rules
- Clients difficult to contact, very frequently did not return calls
- Much work with clients done over the phone
- 1 week approved to see all clients in person, in their apartments
- A 3rd party made the schedule and did not consider my needs
  - Saw 78 clients in person in I week
  - Had brand new clients with no screening added during the week

METHODS

- Hierarchy of data acceptance
  - Some persons had x2 VCS tests or x2 histories taken
    - In person history > phone history > VCS roster
    - In person VCS > online VCS

- Statistics
  - Alpha error rate of <0.05 considered significant for all
  - Calculated on Excel (Office 365) for t-tests
  - X^2 at https://www.socscistatistics.com/tests/chisquare2/default2.aspx

METHODS - DIAGNOSIS

- Several methods available to diagnose
-
  - CIRS or Non-CIRS based on the data available
  - CIRS Dx required Subjective and Objective criteria
  - Most clients with no treatment (n=77, 89.3%)
  - Alternate means Dx criteria and VCS/Sx clusters used
    - Both methods with error rate of ≤1.15%

McMahon, SW. An Evaluation of Alternate Means to Diagnose Chronic Inflammatory Response Syndrome and Determine Prevalence. Medical Research Archives. March 2017;5(3):1-18.
Shoemaker RC. Proficiency Partners. 2018. Module 3. "Exposure Symptom Cluster." Slide 15.

METHODS - DIAGNOSIS

- Alternate means Dx criteria
  - Subjective
    - For children <11 years – 6 symptom clusters
    - For children ≥ 11 years – 8 symptom clusters
  - Objective
    - For all < 11 years – 4 abnormal lab tests
    - For all ≥ 11 years – 5 abnormal lab tests

METHODS - DIAGNOSIS

- VCS / Sx Cluster criteria
  - Subjective – age related
    - Children < 8 years old - 6 symptom clusters
    - For all ≥ 8 years - 8 symptom clusters
  - Objective - abnormal VCS test

RESULTS - DEMOGRAPHICS

- Break down of 84 clients evaluated:
  - 77 currently living in the buildings, 9 moved out already
  - 39 male (45.3%), 47 female (54.7%)
  - 45 apartments represented (45.3% of total)
  - Children under 19 years = 28 (32.6% of total)

RESULTS - DEMOGRAPHICS

- Break down of 84 clients evaluated:
  - 62 diagnosed with CIRS (72.1%)
  - 24 diagnosed as Non-CIRS (27.9%)
    - 2 certainly had CIRS, a couple more very likely had CIRS
      - Insufficient lab tests to documents
      - Their data were included in the Non-CIRS statistics

RESULTS – CIRS VS. NON-CIRS

Category	CIRS	Non-CIRS	*p*-value
# Male	28 (45.2%)	12 (50.0%)	0.694
# Female	34 (54.8%)	12 (50.0%)	-
Diagnosis CIRS vs. Non-CIRS (prevalence at 7.6%)	72.1%	27.9%	**<.00001**
# Children < 11 years	9 (14.5%)	7 (29.2%)	0.105
# Children 11-18.9 years	8 (12.9%)	4 (16.7%)	-
# Adults	45 (72.6)	13 (54.2%)	-
Avg age all children (yrs)	9.88	9.82	0.974
Avg age adults (yrs)	51.3	69.8	0.624
Average age all (yrs)	39.7	36.8	0.113

RESULTS – CIRS VS. NON-CIRS

Category	CIRS	Non-CIRS	*p*-value
Client w/ Visible Mold (VM in %)	93.6	70.1	**<.00001**
Client w/ Musty Smells (MS in %)	93.4	75.0	**<.00001**
Client w/o VM or MS	1.6 %	4.17%	
Apt with VM (%)	89.0	27.0	0.161, 0.224
Apt with MS (%)	86.0	27.0	0.129, 0.160
Apt. with VM or MS (in %)	97.3	93.3	
Apt. without VM or MS (%)	2.70	6.67	

RESULTS - SYMPTOMS

General System Symptoms	CIRS (%)	Non-CIRS (%)	*p*-value
Fatigue	93.6	50.0	**.000437**
Generalized Weakness	85.5	16.7	**2.53×10^{-9}**
Headaches	69.4	12.5	**5.17×10^{-8}**
Mood Swings	71.0	33.3	**.00206**

RESULTS - SYMPTOMS

Musculoskeletal System Sx	CIRS (%)	Non-CIRS (%)	*p*-value
Aches (Myalgias)	72.6	12.5	**1.08×10^{-8}**
Cramps	72.6	12.5	**1.08×10^{-8}**
Joint Pains	71.0	16.7	**9.22×10^{-7}**
Morning Stiffness	56.5	45.8	.389

RESULTS - SYMPTOMS

Ophthalmologic System Sx	CIRS (%)	Non-CIRS (%)	*p*-value
Light Sensitivity	66.1	20.8	**7.10×10^{-5}**
Red Eyes	59.7	16.7	**7.06×10^{-5}**
Blurry Vision	74.2	12.5	**4.90×10^{-9}**
Tearing	54.8	20.8	**.00232**

RESULTS - SYMPTOMS

Neurological System Sx	CIRS (%)	Non-CIRS (%)	*p*-value
Unusual Pains	40.3	8.33	**.000352**
Ice Pick Pains	27.4	0.00	**1.06×10^{-5}**
Lightning Bolt Pains	40.3	4.17	**6.95×10^{-6}**
Numbness	59.7	417	**1.14×10^{-10}**
Tingling	69.4	4.17	**6.15×10^{-14}**
Metallic Taste	24.2	12.5	.190
Vertigo/Dizziness	53.2	12.5	**5.48×10^{-5}**
Skin Sensitivity	59.7	20.83	**.000567**
Tremors	29.0	4.17	**.000812**

RESULTS - SYMPTOMS

Gastrointestinal System Sx	CIRS (%)	Non-CIRS (%)	*p*-value
Abdominal Pains	71.0	20.8	**1.31×10^{-5}**
Diarrhea	46.8	16.7	**.00413**

RESULTS - SYMPTOMS

Respiratory System Sx	CIRS (%)	Non-CIRS (%)	*p*-value
Sinus Problems	72.6	16.7	**4.74×10^{-7}**
Cough	56.5	8.33	**3.45×10^{-7}**
Shortness of Breath	72.6	37.5	**.00441**

RESULTS - SYMPTOMS

Cognitive Symptoms	CIRS (%)	Non-CIRS (%)	*p*-value
Memory	75.8	20.8	**2.24×10^{-6}**
Focus/Concentration	64.5	12.5	**4.95×10^{-7}**
Confusion	56.5	16.7	**.000215**
Assimilation of New Knowledge	54.8	16.7	**.000366**
Word Finding	71.0	12.5	**2.37×10^{-8}**
Disorientation	30.7	0	**2.53×10^{-6}**

RESULTS - SYMPTOMS

Genitourinary System Sx	CIRS (%)	Non-CIRS (%)	*p*-value
Excessive Thirst	67.7	37.5	**.0137**
Excessive Urination	85.5	45.8	**.0139**

RESULTS - SYMPTOMS

Hypothalamic System Sx	CIRS (%)	Non-CIRS (%)	*p*-value
Static Shocking	37.1	12.5	**.0101**
Excessive Sweating	62.9	29.17	**.00468**
Temperature Dysregulation	72.6	20.8	**7.32×10^{-6}**
Appetite Swings	72.6	12.5	**1.08×10^{-8}**

RESULTS – CIRS VS. NON-CIRS

- 8 Apartments had both CIRS and Non-CIRS persons
  - 12 had CIRS
    - (<20% of the total CIRS clients)
  - 16 had Non-CIRS
    - (2/3 the total Non-CIRS clients
  - The Non-CIRS persons were usually the youngest

RESULTS – SUMMARY

Category	CIRS	Non- CIRS	*p*-value
# Symptoms/client	22.68	7.65	**2×10^{-14}**
# Symptom Clusters/client	8.99	5.10	**2×10^{-18}**
# Abnormal PE findings/client	3.27	1.2	**0.0001**
% Abnormal VCS test	89.3	41.7	**8×10^{-7}**
# Labs abnormal/client	4.32	1.05	**4×10^{-7}**
# Total Labs tested	6.12	1.75	**3.84×10^{-7}**

RESULTS – LAB TESTS

Test	Expected Abnormal	Actual Abnormal	% Abnormal Test	P-value
HLA ("M" or "D")	12	37	75.5%	**<.00001**
MSH	2	31	100%	**<.00001**
ADH/osmolality	8	24	55.8%	**.00872**
ACTH/cortisol	6	21	61.8%	**.00143**
TGF-β1	1	15	57.7%	**.000026**
MMP-9	2	44	93.6%	**<.00001**
C4a	1	25	86.2%	**<.00001**

RESULTS – TREATMENT

- All clients who appeared to have CIRS were referred to 3 relatively local treatment facilities.
- 9 had already moved out
  - 7 clients with CIRS
  - 2 who likely had CIRS but fell just short of the Dx objective criteria
- All 9 had significant improvements in Sx after moving out
- 8 of 9 demonstrated VCS improvement after moving
  - 2 went from fail to pass
  - Only 1 was not significantly improved

RESULTS – MEDICAL VS. ENVIRONMENTAL SCREENING

- Over 95% of Apt WDB by medical screening (VM and/or MS)
- Environmental screening covered by Greg Weatherman previously
  - ERMI x1-2
  - HERTSMI-2 x 1-2
  - ET testing
  - Micro-vacuum dust samples
  - Apt, hallways, HVAC, community rooms, rooftops
- 32 Apt evaluated environmentally (Greg) and medically (me)

RESULTS – MEDICAL VS. ENVIRONMENTAL SCREENING

Location	Visible Mold	Musty Smells	1st ERMI	2nd ERMI	1st HERTSMI-2	2nd HERTSMI-2	Endotoxin	Comments
Outside control	-	-	6.23	-	-	-	-	
A1105	**Y**	N	9.75	10.60	**16**	**12**	**508**	
A1109	**Y**	N	16.45	15.59	**30**	**16**	**331**	
A1110	**Y**	**Y**	10.64	16.74	8	**20**	-	
A1201	**Y**	**Y**	2.39	3.39	8	4	136	5 million Stachy under the sink
A1205	**Y**	**Y**	12.84	7.90	**14**	8	**250**	
A1300	N	N	3.59	14.99	10	**24**	105	A. Pen 10, Chaet 10
A1302	**Y**	N	17.25	22.18	**12**	**26**	**9188**	
A1303	N	**Y**	6.78	10.61	10	**18**	**242**	

RESULTS – MEDICAL VS. ENVIRONMENTAL SCREENING

Location	Visible Mold	Musty Smells	1st ERMI	2nd ERMI	1st HERTSMI-2	2nd HERTSMI-2	Endotoxin	Comments
A1308	N	**Y**	7.08	10.96	6	6	95	cleanest
A1400	**Y**	**Y**	15.51	20.23	**22**	**22**	**642**	
A1401	**Y**	**Y**	7.72	10.43	**14**	**20**	**255**	
A1404	**Y**	**Y**	20.20	-	**20**	-	**350**	
A1407	N	**Y**	4.21	-	10	-	**427**	A. Pen 600
A1501	**Y**	**Y**	9.06	8.72	**14**	10	-	
B1010	**Y**	**Y**	15.58	20.05	**24**	**30**	11	
B1016	**Y**	**Y**	6.46	15.59	6	**16**	105	

RESULTS – MEDICAL VS. ENVIRONMENTAL SCREENING

Location	Visible Mold	Musty Smells	1st ERMI	2nd ERMI	1st HERTSMI-2	2nd HERTSMI-2	Endotoxin	Comments
B1017	**Y**	N	15.05	16.83	**14**	**14**	44	
B1018	N	N	7.59	18.83	**16**	**22**	**960**	A. pen, .A vers, Chaet, Wallemia
B1020	**Y**	N	11.41	22.87	10	**22**	**2033**	
B1021	**Y**	**Y**	14.59	18.06	**22**	**22**	**258**	
B1024	**Y**	**Y**	3.17	**11.47**	8	10	**438**	A. niger 580
B1026	**Y**	-	11.93	16.60	**16**	**18**	**3627**	
B1029	**Y**	**Y**	18.18	14.83	**20**	**18**	**2191**	
B1030	**Y**	**Y**	11.27	10.81	10	10	**443**	

RESULTS – MEDICAL VS. ENVIRONMENTAL SCREENING

Location	Visible Mold	Musty Smells	1st ERMI	2nd ERMI	1st HERTSMI-2	2nd HERTSMI-2	Endotoxin	Comments
B1031	N	N	26.03	21.04	**32**	**12**	174	A. pen, A. vers, Chaet, Stachy
B1033	**Y**	**Y**	6.54	5.85	**14**	**18**	**227**	
B1037	**Y**	**Y**	9.46	27.24	**16**	**30**	-	
B1038	N	**Y**	17.15	24.86	10	**26**	-	
B1040	**Y**	**Y**	13.33	15.48	**18**	10	**396**	
B1043	**Y**	**Y**	10.33	13.90	12	**20**	61	
B1048	**Y**	**Y**	25.04	27.14	**24**	**26**	**1840**	
B1049	**Y**	**Y**	19.79	11.72	**16**	**14**	15	

RESULTS – MEDICAL VS. ENVIRONMENTAL SCREENING

- Takeaways
  - Every apartment had some degree of water damage and microbial growth except one (A1308)
  - Presence of Visible Mold is a good "positive" indicator
  - Presence of Musty Smells is a good "positive" indicator
  - Absence of both does not mean "no amplified growth"

CONTACT INFO

- Scott W. McMahon, MD

- Whole World Health Care
  - 575.627.5571
  - wwhcinfo@wholeworldhealthcare.com
  - scottmcmahon.doctor

- The Oasis
  - scott@oasisnm.com

- www.CIRSx.com
  - info@cirsx.com