

Tables:

Table 1:

Autopsy hyaline membrane disease per 1000 live births. The third data source, from Hawaii, was directed at the question whether a population with few (at the time) of European descent and even fewer Afroamericans would manifest the clinicopathologic condition of respiratory distress syndrome-hyaline membrane disease since to that point in time very few reports had come from Asian sources. Overall there was no difference with other parts of the United States from a population in a warm and humid climate. The highest prevalence in Hawaii was among Filipinos at 13.5/1000 births while all other racial groups were in the range of 1.6 to 3.2 per thousand. Unmentioned was the corollary factor of a sea level population. The other two studies were reviewed by Chuang.

Author, year, location	Full term	Premature
Potter, 1950, Chicago	1.0	40.5
Latham, et al. 1955, Baltimore	1.1	35.5
Chuang, 1962, Honolulu	0.2	35.1

Table 2.

Prevalence of hyaline membrane disease in males and females by gestational age. This table is a combination of data from: *South Med.J.* 56:1018-1022, 1963 and *Virch.Arch.Pathol.* 341:259-270, 1966, plus 13 unreported term cases from University of Florida (the author) and Johns Hopkins Hospital, Baltimore (courtesy of Peter Gruenwald, M.D.).

Age group	Total newborns	Male	Female
Premature	80	52 (65.0%)	28 (35.0%)
Term	55	45 (81.8%)	10 (18.2%)

Table 3.

Frequency of hyaline membrane disease by birth weight and by sex of premature infant. [South.Med.J. 56:1018-1033, 1963]. The percentage columns contain the number of cases in parentheses. The overall ratio between males and females is close to that for prematures in Table 2 while the ratio in the 2001-2500 gram subset is a remarkable 7:1. Obviously, the actual value found depends on the data source but the overall trend is clear: after a birth weight of 1500 grams female infants are much less likely to display the disorder at autopsy and presumably during early life.

	Males		Females	
Weight class (g)	Total	% HMD	Total	% HMD
500-1000	31	25.8 (8)	46	6.5 (3)
1001-1500	51	37.3 (19)	38	39.5 (15)
1501-2000	24	62.5 (15)	26	23.1 (6)
2001-2500	14	64.2 (9)	11	9.1 (1)
Total	120	42.5 (51)	121	20.6 (25)

Table 4.

Comparative mass, size, and viscosity of gases in experiments shown in Figure 7

	Molecular weight	Viscosity *	Diameter Å	d/dO ₂
He	4	196	2.66	0.91
N ₂	28	176	3.15	1.07
O ₂	32	205	2.93	1.00
SF ₆	146	5400	4.77	1.63

* Viscosity: micropoise = 10⁻⁶ dyne-sec/cm²

Table 5.

Comparison of newborn rabbits undergoing thoracic restraint as inducer of ventilatory distress. Only the extent of lung injury has statistical significance, $t = 6.728$, $p << 0.001$.

Test environment	Number	Birth weight (g)	Survival (hr)	Gross lung change (%)
Air only	30	47.48 ± 1.60	62.72 ± 4.81	16.95 ± 4.19
100% oxygen	30	46.56 ± 1.57	59.81 ± 3.27	38.97 ± 6.50

Table 6.

Newborn rabbits with thoracic restraint induced ventilatory distress: magnetized oxygen versus plain oxygen. Despite the smaller size of the magnetized oxygen group, the difference in survival is significant, $t = 5.535$, $p << 0.001$, and the difference in extent of lung injury is also significant, $t = 4.125$, $p < 0.001$. The lung weight to autopsy weight ratios are significant, barely, $t = 2.097$, $0.05 > p > 0.02$, with the magnitude opposite that of adult white mice. Here the extreme extent of lung injury over a much longer time frame may indicate a terminal influx of blood and fluid.

Category (mean values)	Magnetized oxygen N = 7	Plain 100% oxygen N = 37	Ratio Plain:Oxymag
Weight loss (%)	25.17 ± 3.15	26.27 ± 2.98	1.0437
Survival (hours)	72.53 ± 11.20	46.67 ± 10.81	0.6435
Gross lung injury (%)	99.57 ± 0.43	83.86 ± 14.03	0.8422
Lung weight:autopsy weight ratio	0.0330 ± 0.0035	0.0305 ± 0.0036	0.9242

Table 7.

Adult female white mice in chambers with magnetized or plain oxygen without any other modality for inducing ventilatory distress. The difference in survival is significant, $t = 5.439$, $p < 0.001$. The lung weight to autopsy weight ratios are significant, $t = 3.286$, $p < 0.01$. The latter implies less hyperemia and less fluid in airspaces, the reverse of that seen in the newborn rabbits stressed by thoracic restraint.

Category (mean values)	Magnetized oxygen N = 18	Plain 100% oxygen N = 20	Ratio Plain:Oxymag
Weight loss (%)	31.55 ± 1.49	28.05 ± 2.57	0.8891
Survival (hours)	64.57 ± 2.93	48.88 ± 5.39	0.7570
Gross lung injury (%)	55.75 ± 10.45	61.67 ± 10.91	1.1062
Lung weight:autopsy weight ratio	0.0165 ± 0.0018	0.0188 ± 0.0031	1.1394