Results

The results were tabulated each table contain group and their age, pathology, pH at first visit and pH at second visit after using alkaline nasal wash.

Table (1): CONTROL GROUP

Case number	Diagnosis	Age	pH measurement
Case 1	Normal	38	6
Case 2	Normal	30	6
Case 3	Normal	25	7
Case 4	Normal	34	7.5
Case 5	Normal	39	6
Case 6	Normal	29	7
Case 7	Normal	30	6.5
Case 8	Normal	24	6
Case 9	Normal	29	6.5
Case 10	Normal	35	5.5
Case 11	Normal	27	6.5
Case 12	Normal	35	6
Case 13	Normal	28	6.5
Case 14	Normal	25	7
Case 15	Normal	28	6
Case 16	Normal	29	5.5
Case 17	Normal	25	6
Case 18	Normal	33	5
Case 19	Normal	32	7
Case 20	Normal	35	7.5

Table (1): shows the pH measuring & age of the control group

INFECTIVE CONDITIONS OF NOSE (Study group I):

Case number	Diagnosis	Age	pH at first visit	pH at second visit
Case 1	A. sinusitis	32	8	7.5
Case 2	Ch. Sinusitis	25	8	7.5
Case 3	Common cold	15	7.5	7
Case 4	A. sinusitis	14	8.5	7
Case 5	A. sinusitis	30	8	7
Case 6	Common cold	21	8.5	8
Case 7	Ch. Sinusitis	42	8	7.5
Case 8	Ch. Sinusitis	23	7.5	7
Case 9	A. sinusitis	31	8.5	7.5
Case 10	Common cold	22	8	7.5
Case 11	Ch. Sinusitis	28	8	7.5
Case 12	Ch. Sinusitis	40	8.5	7.5
Case 13	Ch. Sinusitis	45	8	8
Case 14	Ch. Sinusitis	24	8	7.5
Case 15	Ch. Sinusitis	28	8	7.5
Case 16	Ch. Sinusitis	35	7.5	6.5
Case 17	Ch. Sinusitis	19	7.5	7
Case 18	A. sinusitis	25	7	7
Case 19	Common cold	30	8	7.5
Case 20	A. sinusitis	43	8.5	7

Table (2): shows the pH measuring of the study group I (infective rhinitis) before and after using alkaline nasal wash

Group (2): ALLERGIC GROUP: (Study group II)

Case number	Diagnosis	Age	pH at first visit	pH at second visit
Case 1	Allergic rhinitis	80	8	7.5
Case 2	Allergic rhinitis	30	6.5	7
Case 3	Allergic rhinitis	37	8	7.5
Case 4	Allergic rhinitis	17	7	7
Case 5	Allergic rhinitis	19	7.5	7
Case 6	Allergic rhinitis	21	6.5	7
Case 7	Allergic rhinitis	60	7.5	8
Case 8	Allergic rhinitis	28	6.5	6.5
Case 9	Allergic rhinitis	40	7	7.5
Case 10	Allergic rhinitis	17	7	7
Case 11	Allergic rhinitis	38	8.5	8.5
Case 12	Allergic rhinitis	47	7.5	7
Case 13	Allergic rhinitis	29	7	7.5
Case 14	Allergic rhinitis	32	7	7.5
Case 15	Allergic rhinitis	22	7	7
Case 16	Allergic rhinitis	24	7	7.5
Case 17	Allergic rhinitis	19	6.5	7.5
Case 18	Allergic rhinitis	34	7	7
Case 19	Allergic rhinitis	32	8	7.5
Case 20	Allergic rhinitis	37	7	7

Table (3): shows the pH measuring of the study group II (allergic rhinitis) before and after using alkaline nasal wash

Group (4): NASAL MASSES (Study group III)

Case number	Diagnosis	Age	pH at first visit	pH at second visit
Case 1	Rhinoscleroma	53	9	8.5
Case 2	Antrochoanal polyp	56	8.5	8.5
Case 3	Inverted papilloma	55	8	7.5
Case 4	Rhinoscleroma	30	7.5	7.5
Case 5	Inverted papilloma	51	8	7.5
Case 6	Antrochoanal polyp	25	8	7.5
Case 7	Rhinoscleroma	20	8.5	8
Case 8	Encephalocele	7	7	6.5
Case 9	Inverted papilloma	35	8	8.5
Case 10	Cancer nose	65	8	8
Case 11	Antrochoanal polyp	30	9	9
Case 12	Antrochoanal polyp	19	7.5	8.5
Case 13	Rhinoscleroma	29	8	8.5
Case 14	Inverted papilloma	40	7.5	7
Case 15	Rhinoscleroma	15	7.5	7.5
Case 16	Rhinoscleroma	55	9	8
Case 17	Antrochoanal polyp	49	8	8.5
Case 18	Inverted papilloma	69	7	8
Case 19	Inverted papilloma	49	7.5	7.5
Case 20	Rhinoscleroma	52	8	8

Table (4): shows the pH measuring of the study group III (nasal masses) before and after using alkaline nasal wash

- The study includes 80 patients, their age ranged from 7-80 years (mean 34.08 ± 14.6).

- **Nasal pH at first time**

In control group ranged from 5.0-7.5 (6.35±0.6), in allergic group 6.5-8.0 (7.1±0.5), in infective group 7.0-8.5 (7.9±0.4), in nasal masses group 7.0-9.0 (7.9±0.5)

- **Nasal pH at second visit**

In allergic group 6.5-8.0 (7.2±0.4), in infective group 6.5-8.0 (7.3±0.3), in nasal masses group 6.5-9.0 (7.9±0.6)

Diagnosis	pH of first visit	pH of second visit
Control group	6.35±0.6	--
Infective group	7.9±0.4	7.3±0.3
Allergic group	7.1±0.5	7.2±0.4
Nasal mass group	7.9±0.5	7.9±0.6

Table shows mean pH of first visit & mean pH of second visit as measured and shows that maximum pH was nasal mass group then infective group then allergic group and minimum was control group (highest nasal mass group, lowest control group)

- Comparison was made between four groups as regards pH at first visit, pH at second visit and Age. ANOVA test was done and results showed no statistically significant difference between the four groups (P-value >0.05) as regard age, but was highly significant as regard pH in first and second time.

		Mean	SD	P	Sig.
Age	Control	34.4	13.74	0.091	N.S.
	Allergic	33.15	15.46		
	Infective	28.6	8.94		
	Nasal masses	40.2	17.61		

Table shows mean age between the control and target groups and show no significant difference between four groups.

SD= Standard deviation Sig = Significance
P > 0.05 N.S. = non significant

		Mean	SD	P	Sig.
pH of first visit	Control	6.35	0.67	0.000	H.S.
	Allergic	7.20	0.57		
	Infective	7.97	0.41		
	Nasal masses	7.97	0.59		

Table shows mean pH of first visit between the control and target groups and show highly significant difference between four groups.

SD= Standard deviation Sig = Significance
P < 0.05 H.S. = highly significant

`		Mean	SD	P	Sig.
pH of second visit	Allergic	7.53	0.44	0.000	H.S.
	Infective	7.32	0.37		
	Nasal masses	7.92	0.61		

Table shows mean pH of second visit between target groups and show highly significant difference between three groups.

SD= Standard deviation Sig = Significance
P < 0.05 H.S. = highly significant

- (Multiple comparison) Post-Hoc tests were done using LSD (least significance difference) to detect the significance between the groups as regard pH at first visit. Comparison was done and results were tabulated.

- The result show no statistically significance difference between infective and nasal masses group as regard pH at first visit.

- Result show highly significance difference between (control & allergic) (control & infective) (control & masses), (allergic & infective), (allergic & masses), (infective & allergic)

Variant	Diagnosis 1	Diagnosis 2	Mean difference	P	Significance
pH at first visit	Control	Allergic	-0.85	0.000	H.S.
		Infective	-1.62	0.000	H.S.
		Masses	-1.62	0.000	H.S.
	Allergic	Infective	-0.77	0.000	H.S.
		Masses	-0.77	0.000	H.S.
	Infective	Masses	0.00	1.000	N.S.

Table shows the mean difference of nasal mucosal pH between control & target groups and show highly significant difference between groups except between infective rhinitis and nasal masses groups which show no difference.

Mean difference is significant at 0.05 level

- (Multiple comparison) Post-Hoc tests were done using LSD (least significance difference) to detect significance between the groups as regard pH at second visit. Results were tabulated.

- The result show no statistically significance difference between infective group and allergic group as regard pH at second visit.

- Result show highly significance difference between (allergic & masses), (infective & masses)

Variant	Diagnosis 1	Diagnosis 2	Mean difference	P	Significance
pH at second visit	Allergic	Infective	-0.025	0.864	N.S.
		Masses	-0.625	0.000	H.S.
	Infective	Masses	-0.6	0.000	H.S.

Table shows the mean difference of nasal mucosal pH between target groups and show highly significant difference between groups except between (allergic rhinitis & infective rhinitis group) which show no difference.

Mean difference is significant at 0.05 level

- Pearson correlation (r) was used to detect association between pH of first visit and pH of second visit after alkaline nasal wash in each group and results were tabulated.

- In allergic group:

	pH of first visit	pH of second visit	P	Significance
Pearson correlation	0.691	0.٦٥٩	0.3٨	N.S.

Table show no significant difference in pH measurement at first and second visit in allergic group.

- In infective group:

	pH of first visit	pH of second visit	P	Significance
Pearson correlation	0.504	0.483	0.031	S.

Table show significant difference in pH measurement at first and second visit in infective group.

- In nasal masses group:

	pH of first visit	pH of second visit	P	Significance
Pearson correlation	0.615	0.607	0.58	N.S.

Table show no significant difference in pH measurement at first and second visit in nasal masses group.