## Table S1: Patient characteristics at baseline

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|   |   | **Non-pH Probe Cohort** | **pH Probe Cohort** | **Non-IQR Cohort** | **IQR Cohort** | **Full Cohort** |
|   |   | **PPI-R (n=25)\*** | **PPI-nR (n=21)\*** | **p-value†** | **PPI-R (n=32)\*** | **PPI-nR (n=14)\*** | **p-value†** | **PPI-R (n=23)\*** | **PPI-nR (n=23)\*** | **p-value†** | **PPI-R (n=34)\*** | **PPI-nR (n=12)\*** | **p-value†** | **PPI-R (n=57)\*** | **PPI-nR (n=35)\*** | **p-value†** |
| **Tx** | Esomeprazole | 23(92.0) | 20(95.2) | 1 | 31(96.9) | 14(100) | 1 | 22(95.7) | 23(100) | 1 | 32(94.1) | 11(91.7) | 1 | 54(94.7) | 34(97.1) | 1 |
| PPI dose mg/kg/day | 1.84(1.27) | 1.85(1.38) | 0.95 | 1.84(1.03) | 1.72(1.22) | 0.24 | 1.81(1.35) | 1.83(1.44) | 0.90 | 1.85(0.92) | 1.73(0.85) | 0.02 | 1.84(1.15) | 1.8(1.32) | 0.59 |
|  | PPI duration weeks | 69[63,71] | 64[62,71] | 0.43 | 73[69,76] | 68[63,76] | 0.21 | 69[63,72] | 65[62,75] | 0.81 | 74.5[69,76] | 67.5[63,68] | 0.06 | 72[68,75] | 67[63,71] | 0.09 |
| **Characteristics** | Caucasian | 24(96.0) | 20(95.2) | 1 | 31(96.9) | 12(85.7) | 0.82 | 23(100) | 20(87) | 0.83 | 32(94.1) | 12(100) | 1.00 | 55(96.5) | 32(91.4) | 0.878 |
| Male | 18(72.0) | 16(76.2) | 1 | 23(71.9) | 8(57.1) | 0.80 | 20(87) | 15(65.2) | 0.65 | 21(61.8) | 9(75) | 0.80 | 41(71.9) | 24(68.6) | 1 |
| Age at diagnosis | 10.42(5.4) | 9.38(5.76) | 0.33 | 10.29(5.64) | 10.23(6.48) | 0.97 | 10.45(6.16) | 9.42(6.12) | 0.39 | 10.28(5.05) | 10.34(7.26) | 1 | 10.35(5.5) | 9.72(6.02) | 0.44 |
| Age (z-score) | 0.16(-1.12) | -0.11(-1.04) | 0.33 | 0.13(-1.06) | 0.12(-0.83) | 0.98 | 0.18(-0.91) | -0.09(-0.94) | 0.39 | 0.13(-1.22) | 0.13(-0.98) | 0.98 | 0.15(-1.1) | -0.01(-0.96) | 0.45 |
| Height (z-score) | 0.04(-2.82) | 0.49(-2.6) | 0.27 | -0.74(-2.73) | -0.4(-2.63) | 0.42 | -0.01(-2.82) | 0.36(-2.49) | 0.37 | -0.66(-2.71) | -0.34(-2.78) | 0.41 | -0.4(-2.73) | 0.11(-2.57) | 0.09 |
| Weight (z-score) | -0.16(-1.89) | -0.02(-1.69) | 0.70 | -0.63(-1.8) | -0.51(-1.66) | 0.72 | -0.27(-1.83) | 0.12(-1.67) | 0.31 | -0.54(-1.83) | -0.76(-1.77) | 0.47 | -0.44(-1.83) | -0.24(-1.68) | 0.43 |
| **History** | Allergic rhinitis | 8(33.3) | 6(28.6) | 1 | 16(50) | 6(42.9) | 1 | 8(34.8) | 6(26.1) | 0.76 | 16(48.5) | 6(50) | 1 | 24(42.9) | 12(34.3) | 0.69 |
| Asthma | 9(36.0) | 1(4.8) | 0.07 | 12(37.5) | 5(35.7) | 1 | 7(30.4) | 2(8.7) | 0.16 | 14(41.2) | 4(33.3) | 1 | 21(36.8) | 6(17.1) | 0.17 |
| Atopy | 5(20.0) | 8(38.1) | 0.36 | 4(12.5) | 6(42.9) | 0.14 | 4(17.4) | 9(39.1) | 0.35 | 5(14.7) | 5(41.7) | 0.15 | 9(15.8) | 14(40.0) | 0.06 |
| Food allergies | 6(24.0) | 6(28.6) | 1 | 9(28.1) | 3(21.4) | 1 | 3(13) | 6(26.1) | 0.48 | 12(35.3) | 3(25) | 0.74 | 15(26.3) | 9(25.7) | 1 |
| **Symptoms** | Abdominal pain | 15(60.0) | 7(33.3) | 0.31 | 20(62.5) | 6(42.9) | 0.59 | 13(56.5) | 9(39.1) | 0.61 | 22(64.7) | 4(33.3) | 0.38 | 35(61.4) | 13(37.1) | 0.26 |
| Dysphagia | 9(36.0) | 10(47.6) | 0.79 | 12(37.5) | 7(50.0) | 0.77 | 8(34.8) | 11(47.8) | 0.60 | 13(38.2) | 6(50) | 0.76 | 21(36.8) | 17(48.6) | 0.56 |
| Food refusal | 7(28.0) | 4(19.0) | 0.74 | 9(28.1) | 3(21.4) | 1 | 5(21.7) | 4(17.4) | 1 | 11(32.4) | 3(25) | 1 | 16(28.1) | 7(20.0) | 0.63 |
| Heartburn | 4(16.0) | 2(9.5) | 0.68 | 9(28.1) | 5(35.7) | 0.75 | 8(34.8) | 4(17.4) | 0.35 | 5(14.7) | 3(25) | 0.67 | 13(22.8) | 7(20.0) | 1 |
| Impaction | 6(24.0) | 9(42.9) | 0.38 | 11(34.4) | 7(50.0) | 0.56 | 7(30.4) | 9(39.1) | 0.77 | 10(29.4) | 7(58.3) | 0.35 | 17(29.8) | 16(45.7) | 0.31 |
| Regurgitation / vomiting | 10(40.0) | 8(38.1) | 1 | 7(21.9) | 6(42.9) | 0.33 | 6(26.1) | 10(43.5) | 0.56 | 11(32.4) | 4(33.3) | 1 | 17(29.8) | 14(40.0) | 0.53 |
| Rostrosternal pain | 4(16.0) | 3(14.3) | 1 | 9(28.1) | 6(42.9) | 0.54 | 6(26.1) | 4(17.4) | 0.73 | 7(20.6) | 5(41.7) | 0.31 | 13(22.8) | 9(25.7) | 0.81 |
| **EREFS** | Crepe paper mucosa | 0(0) | 3(14.3) | 0.11 | 2(6.3) | 1(7.1) | 1 | 1(4.3) | 2(8.7) | 1 | 1(2.9) | 2(16.7) | 0.19 | 2(3.5) | 4(11.4) | 0.21 |
| Edema | 21(84.0) | 21(100) | 0.83 | 17(53.1) | 13(92.9) | 0.33 | 15(65.2) | 23(100) | 0.38 | 23(67.6) | 23(100) | 0.38 | 38(66.7) | 34(97.1) | 0.27 |
| Erosions | 0(0) | 2(9.5) | 0.22 | 2(6.3) | 0(0) | 1 | 1(4.3) | 2(8.7) | 1 | 1(2.9) | 0(0) | 1 | 2(3.5) | 2(5.7) | 0.64 |
| **Endo** | Distal, eos/hpf | 65[45,87] | 85[50,111] | 0.06 | 30[20,40] | 65.5[40,80] | 0.02 | 58[28,80] | 80[50,91] | 0.03 | 38.5[26,58] | 70[40,80] | 0.06 | 40[30,59] | 80[55,87] | < 0.01 |
| Medium-proximal, eos/hpf | 70[48,100] | 78[45,150] | 0.16 | 20[12,22] | 79[50,80] | < 0.01 | 51.5[20,80] | 79.5[50,142] | 0.04 | 20[15,38] | 71[40,100] | 0.04 | 32[20,50] | 79[60,84] | < 0.01 |
| Peak eos/hpf | 93[58,100] | 98[71,150] | 0.08 | 30[20,40] | 80[50,87] | < 0.01 | 67[40,100] | 84.5[67,142] | 0.04 | 40[26,58] | 80[50,100] | < 0.01 | 45[32,65] | 83[71,100] | < 0.01 |

Abbreviations: Tx, therapy; PPI-R, PPI responsive esophageal eosinophilia; PPI-nR, PPI nonresponsive eosinophilic esophagitis; EREFS, endoscopic reference score ; Endo, endoscopy; eos, eosinophils; hpf, high power field (0.24mm2).

\*Count data is reported as n(%N); a Box-Cox transformation is applied to continuous data and the back-transformed mean (SD) are reported; eosinophil counts are reported as median [95% CI].

†Reported value is for Fishers Exact test, 2-sided (contingency data), Welch t-test, 2-sided (continuous data), or negative binomial regression (count data). No correction has been made for multiple testing.