Table S3. Univariable Analysis-Variables Associated with Toxicity

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Toxicity | Time Point | n | Variable | OR (95% CI) | p-value |
| CTCAE v4.03 dehydration >grade 1 | End of treatment | 57/194 | Cytotoxic chemotherapy | 7.15 (3.50,14.63) | <.0001 |
|  |  |  | Oral cavity OAR Dmax dose | 1.55(1.12,2.14) | 0.0083 |
|  |  |  | Oral cavity OAR mean dose | 1.45(1.15,1.82) | 0.0015 |
|  |  |  | Oral cavity OAR V10 | 1.51(1.11,2.07) | 0.0093 |
|  |  |  | Oral cavity OAR V20 | 1.62(1.15,2.28) | 0.0061 |
|  |  |  | Oral cavity OAR V30 | 1.66(1.12,2.46) | 0.0116 |
|  |  |  | Oral cavity OAR V40 | 1.60(1.03,2.48) | 0.0350 |
|  |  |  | Oral cavity OAR V60 | 1.84(1.01,3.37) | 0.0468 |
|  |  |  | Oral cavity OAR V70 | 5.71(1.28,25.56) | 0.0227 |
|  |  |  | Mean left parotid dose | 1.28(1.07,1.53) | 0.0069 |
|  |  |  | Mean right parotid dose | 1.39(1.14,1.69) | 0.0012 |
|  |  |  | Mean total parotid dose | 1.39(1.14,1.69) | <0.0001 |
|  |  |  | Mean left SMG dose | 1.26(1.10,1.44) | 0.0009 |
|  |  |  | Mean right SMG dose | 1.29(1.12,1.47) | 0.0003 |
|  |  |  | Protons | 2.73(1.43,5.22) | 0.0024 |
| CTCAE v4.03 dry mouth >grade 1 | End of treatment | 40/193 | Oral cavity OAR Dmax dose | 1.5(1.03,2.18) | 0.0336 |
|  |  |  | Oral cavity OAR mean dose | 1.58(1.23,2.03) | 0.0004 |
|  |  |  | Oral cavity OAR V10 | 1.82(1.27,2.62) | 0.0011 |
|  |  |  | Oral cavity OAR V20 | 1.99(1.36,2.92) | 0.0004 |
|  |  |  | Oral cavity OAR V30 | 1.9(1.25,2.89 | 0.0028 |
|  |  |  | Oral cavity OAR V40 | 1.85(1.17,2.93) | 0.0082 |
|  |  |  | Oral cavity OAR V50 | 1.86(1.11,3.10) | 0.0183 |
|  |  |  | Mean left parotid dose | 1.31(1.07,1.59) | 0.0073 |
|  |  |  | Mean total parotid dose | 1.33(1.04,1.70) | 0.0206 |
|  |  |  | Mean left SMG dose | 1.3(1.10,1.53) | 0.0020 |
|  |  |  | Mean right SMG dose | 1.24(1.06,1.46) | 0.0063 |
| CTCAE v4.03 dry mouth >grade 1 | 3 months | 25/188 | Oral cavity OAR mean dose | 1.64(1.22,2.19) | 0.0010 |
|  |  |  | Oral cavity OAR V10 | 1.62(1.06,2.47) | 0.0243 |
|  |  |  | Oral cavity OAR V20 | 1.87(1.20,2.90) | 0.0058 |
|  |  |  | Oral cavity OAR V30 | 2.01(1.24,3.25) | 0.0045 |
|  |  |  | Oral cavity OAR V40 | 2.07(1.23,3.48) | 0.0061 |
|  |  |  | Oral cavity OAR V50 | 2.12(1.19,3.77) | 0.0109 |
|  |  |  | Mean left parotid dose | 1.47(1.17,1.85) | 0.0008 |
|  |  |  | Mean right parotid dose | 1.33(1.04,1.71) | 0.0240 |
|  |  |  | Mean total parotid dose | 1.77(1.29,2.44) | 0.0004 |
|  |  |  | Mean left SMG dose | 1.67(1.23,2.28 | 0.0011 |
|  |  |  | Mean right SMG dose | 1.28(1.04,1.56) | 0.0185 |
| CTCAE v4.03 dry mouth >grade 1 | 6 months | 15/179 | Cytotoxic chemotherapy | 3.69(1.13,12.08) | 0.0308 |
|  |  |  | Oral cavity OAR mean dose | 1.89(1.28,2.79) | 0.0013 |
|  |  |  | Oral cavity OAR V10 | 1.83(1.07,3.12) | 0.0261 |
|  |  |  | Oral cavity OAR V20 | 2.24(1.29,3.90) | 0.0044 |
|  |  |  | Oral cavity OAR V30 | 2.47(1.36,4.47) | 0.0028 |
|  |  |  | Oral cavity OAR V40 | 2.57(1.36,4.85) | 0.0037 |
|  |  |  | Oral cavity OAR V50 | 2.69(1.33,5.43) | 0.0059 |
|  |  |  | Oral cavity OAR V60 | 2.9(1.26,6.71) | 0.0126 |
|  |  |  | Mean left parotid dose | 1.62(1.20,2.19) | 0.0017 |
|  |  |  | Mean right parotid dose | 1.7(1.23,2.35) | 0.0013 |
|  |  |  | Mean total parotid dose | 2.39(1.53,3.73) | 0.0001 |
|  |  |  | Mean left SMG dose | 1.85(1.18,2.91) | 0.0071 |
|  |  |  | Mean right SMG dose | 1.53(1.08,2.17) | 0.0169 |
| CTCAE v4.03 dry mouth >grade 1 | 1 year | 10/175 | Cytotoxic chemotherapy | 5.57(1.15,27.02) | 0.0332 |
|  |  |  | Oral cavity OAR Dmax dose | 2.89(1.02,8.16) | 0.0458 |
|  |  |  | Oral cavity OAR mean dose | 2.53(1.51,4.23) | 0.0004 |
|  |  |  | Oral cavity OAR V20 | 2.49(1.28,4.87) | 0.0075 |
|  |  |  | Oral cavity OAR V30 | 2.96(1.46,6.01) | 0.0027 |
|  |  |  | Oral cavity OAR V40 | 3.19(1.51,6.71) | 0.0023 |
|  |  |  | Oral cavity OAR V50 | 3.5(1.56,7.86) | 0.0023 |
|  |  |  | Oral cavity OAR V60 | 4.5(1.75,11.54) | 0.0018 |
|  |  |  | Mean left parotid dose | 1.48(1.06,2.06) | 0.0208 |
|  |  |  | Mean right parotid dose | 1.78(1.20,2.65) | 0.0044 |
|  |  |  | Mean total parotid dose | 2.3(1.39,3.82) | 0.0012 |
|  |  |  | Mean left SMG dose | 1.99(1.04,3.80) | 0.0364 |
|  |  |  | Protons | 4.54(1.22,16.87) | 0.0240 |
| CTCAE v4.03 dry mouth >grade 1 | 2 years | 9/157 | Oral cavity OAR mean dose | 1.94(1.19,3.16) | 0.0075 |
|  |  |  | Oral cavity OAR V30 | 2.16(1.05,4.46) | 0.0374 |
|  |  |  | Oral cavity OAR V40 | 2.37(1.11,5.10) | 0.0266 |
|  |  |  | Oral cavity OAR V50 | 2.66(1.15,6.17) | 0.0226 |
|  |  |  | Oral cavity OAR V60 | 3.36(1.21,9.32) | 0.0197 |
|  |  |  | Mean right parotid dose | 1.51(1.01,2.27) | 0.0453 |
|  |  |  | Mean total parotid dose | 1.81(1.13,2.90) | 0.0132 |
|  |  |  | Protons | 5.59(1.33,23.44) | 0.0186 |
| CTCAE v4.03 dysgeusia >grade 1 | End of Treatment | 40/191 | Oral cavity OAR Dmax dose | 1.5(1.04,2.17) | 0.0305 |
|  |  |  | Oral cavity OAR mean dose | 1.51(1.18,1.94) | 0.0013 |
|  |  |  | Oral cavity OAR V10 | 2.04(1.40,2.95) | 0.0002 |
|  |  |  | Oral cavity OAR V20 | 2.11(1.42,3.11) | 0.0002 |
|  |  |  | Oral cavity OAR V30 | 2.1(1.36,3.25) | 0.0008 |
|  |  |  | Oral cavity OAR V40 | 2.02(1.25,3.24) | 0.0038 |
|  |  |  | Oral cavity OAR V50 | 2.04(1.19,3.49) | 0.0093 |
|  |  |  | Oral cavity OAR V60 | 2.35(1.23,4.49) | 0.0096 |
|  |  |  | Oral cavity OAR V70 | 6.21(1.44,26.87) | 0.0145 |
|  |  |  | Mean right parotid dose | 1.42(1.13,1.79) | 0.0024 |
|  |  |  | Mean total parotid dose | 1.34(1.05,1.71) | 0.0169 |
|  |  |  | Mean right SMG dose | 1.39(1.17,1.66) | 0.0002 |
| CTCAE v4.03 dysgeusia >grade 1 | 3 months | 15/186 | Oral cavity OAR Dmax dose | 2.99(1.26,7.10) | 0.0132 |
|  |  |  | Oral cavity OAR mean dose | 1.76(1.22,2.53) | 0.0024 |
|  |  |  | Oral cavity OAR V10 | 1.98(1.15,3.39) | 0.0134 |
|  |  |  | Oral cavity OAR V20 | 2.43(1.38,4.26) | 0.0020 |
|  |  |  | Oral cavity OAR V30 | 2.45(1.35,4.46) | 0.0033 |
|  |  |  | Oral cavity OAR V40 | 2.32(1.22,4.41) | 0.0101 |
|  |  |  | Oral cavity OAR V50 | 2.34(1.15,4.78) | 0.0196 |
|  |  |  | Oral cavity OAR V60 | 2.56(1.11,5.92) | 0.0279 |
|  |  |  | Oral cavity OAR V70 | 8.75(1.87,40.87) | 0.0058 |
|  |  |  | Mean left parotid dose | 1.42(1.08,1.86) | 0.0119 |
|  |  |  | Mean right parotid dose | 1.4(1.02,1.91) | 0.0367 |
|  |  |  | Mean total parotid dose | 1.79(1.22,2.63) | 0.0028 |
|  |  |  | Mean left SMG dose | 1.43(1.06,1.92) | 0.0191 |
|  |  |  | Mean right SMG dose | 1.45(1.08,1.95) | 0.0124 |
| CTCAE v4.03 dysphagia >grade 1 | End of Treatment | 53/185 | Cytotoxic chemotherapy | 2.17(1.13,4.15) | 0.0193 |
|  |  |  | Oral cavity OAR mean dose | 1.5(1.18,1.90) | 0.0011 |
|  |  |  | Oral cavity OAR V10 | 1.98(1.40,2.79) | 0.0001 |
|  |  |  | Oral cavity OAR V20 | 1.84(1.27,2.66) | 0.0011 |
|  |  |  | Oral cavity OAR V30 | 1.81(1.19,2.77) | 0.0058 |
|  |  |  | Oral cavity OAR V40 | 1.84(1.15,2.96) | 0.0115 |
|  |  |  | Oral cavity OAR V50 | 1.94(1.13,3.33) | 0.0165 |
|  |  |  | Oral cavity OAR V60 | 2.29(1.18,4.43) | 0.0137 |
|  |  |  | Mean right parotid dose | 1.38(1.12,1.69) | 0.0021 |
|  |  |  | Mean total parotid dose | 1.47(1.16,1.86) | 0.0014 |
|  |  |  | Mean left SMG dose | 1.41(1.20,1.65) | <.0001 |
|  |  |  | Mean right SMG dose | 1.45(1.22,1.71) | <.0001 |
|  |  |  | Protons | 3.38(1.73,6.63) | 0.0004 |
| CTCAE v4.03 dysphagia >grade 1 | 3 months | 34/181 | Oral cavity OAR mean dose | 1.7(1.29,2.26) | 0.0002 |
|  |  |  | Oral cavity OAR V10 | 1.93(1.30,2.87) | 0.0011 |
|  |  |  | Oral cavity OAR V20 | 1.98(1.30,3.02) | 0.0015 |
|  |  |  | Oral cavity OAR V30 | 2.07(1.29,3.33) | 0.0026 |
|  |  |  | Oral cavity OAR V40 | 2.13(1.26,3.62) | 0.0049 |
|  |  |  | Oral cavity OAR V50 | 2.2(1.21,3.99) | 0.0096 |
|  |  |  | Oral cavity OAR V60 | 2.37(1.17,4.79) | 0.0161 |
|  |  |  | Mean left parotid dose | 1.24(1.01,1.52) | 0.0428 |
|  |  |  | Mean right parotid dose | 1.39(1.11,1.75) | 0.0047 |
|  |  |  | Mean total parotid dose | 1.58(1.20,2.08) | 0.0012 |
|  |  |  | Mean left SMG dose | 1.46(1.18,1.81) | 0.0006 |
|  |  |  | Mean right SMG dose | 1.45(1.17,1.80) | 0.0007 |
|  |  |  | Protons | 3.47(1.60,7.5) | 0.0016 |
| CTCAE v4.03 dysphagia >grade 1 | 6 months | 23/174 | Oral cavity OAR Dmax dose | 2(1.08,3.70) | 0.0268 |
|  |  |  | Oral cavity OAR mean dose | 2.17(1.50,3.13) | <.0001 |
|  |  |  | Oral cavity OAR V10 | 2.05(1.28,3.27) | 0.0026 |
|  |  |  | Oral cavity OAR V20 | 2.27(1.38,3.73) | 0.0013 |
|  |  |  | Oral cavity OAR V30 | 2.69(1.52,4.76) | 0.0007 |
|  |  |  | Oral cavity OAR V40 | 2.96(1.56,5.61) | 0.0009 |
|  |  |  | Oral cavity OAR V50 | 3.3(1.60,6.80) | 0.0012 |
|  |  |  | Oral cavity OAR V60 | 4.18(1.78,9.80) | 0.0010 |
|  |  |  | Oral cavity OAR V70 | 13.79(2.10,90.70) | 0.0063 |
|  |  |  | Mean right parotid dose | 1.48(1.13,1.93) | 0.0047 |
|  |  |  | Mean total parotid dose | 1.63(1.18,2.25) | 0.0029 |
|  |  |  | Mean left SMG dose | 1.57(1.18,2.10) | 0.0022 |
|  |  |  | Mean right SMG dose | 1.68(1.20,2.36) | 0.0024 |
|  |  |  | Protons | 2.63(1.07,6.45) | 0.0342 |
| CTCAE v4.03 dysphagia >grade 1 | 1 year | 18/169 | Age | 1.81(1.14,2.88) | 0.0123 |
|  |  |  | Hypertension | 2.74(1.01,7.49) | 0.0489 |
|  |  |  | Oral cavity OAR mean dose | 1.73(1.19,2.51) | 0.0039 |
|  |  |  | Oral cavity OAR V10 | 1.77(1.07,2.93) | 0.0274 |
|  |  |  | Oral cavity OAR V20 | 1.88(1.09,3.25) | 0.0228 |
|  |  |  | Oral cavity OAR V30 | 2.09(1.12,3.91) | 0.0210 |
|  |  |  | Oral cavity OAR V40 | 2.18(1.08,4.38) | 0.0293 |
|  |  |  | Oral cavity OAR V50 | 2.37(1.08,5.19) | 0.0311 |
|  |  |  | Oral cavity OAR V60 | 3.09(1.24,7.70) | 0.0154 |
|  |  |  | Oral cavity OAR V70 | 16.25(2.32,113.56) | 0.0050 |
|  |  |  | Mean left parotid dose | 1.42(1.09,1.85) | 0.0094 |
|  |  |  | Mean total parotid dose | 1.47(1.05,2.06) | 0.0262 |
|  |  |  | Mean left SMG dose | 1.71(1.18,2.47) | 0.0044 |
|  |  |  | Mean right SMG dose | 1.35(1.06,1.73) | 0.0162 |
| CTCAE v4.03 dysphagia >grade 1 | 2 years | 16/153 | Oral cavity OAR mean dose | 1.54(1.04,2.29) | 0.0311 |
|  |  |  | Mean left parotid dose | 1.33(1.02,1.75) | 0.0382 |
|  |  |  | Mean total parotid dose | 1.56(1.08,2.25) | 0.0172 |
|  |  |  | Mean left SMG dose | 1.54(1.10,2.16) | 0.0125 |
|  |  |  | Mean right SMG dose | 1.36(1.04,1.79) | 0.0267 |
|  |  |  | Protons | 3.89(1.35,11.25) | 0.0120 |
| CTCAE v4.03 oral pain >grade 1 | End of Treatment | 27/191 | Oral cavity OAR mean dose | 1.82(1.35,2.45) | <.0001 |
|  |  |  | Oral cavity OAR V10 | 1.86(1.23,2.82) | 0.0034 |
|  |  |  | Oral cavity OAR V20 | 2.09(1.36,3.23) | 0.0008 |
|  |  |  | Oral cavity OAR V30 | 2.31(1.43,3.73) | 0.0006 |
|  |  |  | Oral cavity OAR V40 | 2.55(1.51,4.31) | 0.0004 |
|  |  |  | Oral cavity OAR V50 | 2.92(1.62,5.25) | 0.0003 |
|  |  |  | Oral cavity OAR V60 | 3.57(1.78,7.15) | 0.0003 |
|  |  |  | Protons | 3.21(1.40,7.37) | 0.0061 |
| CTCAE v4.03 salivary duct inflammation >grade 1 | End of Treatment | 51/192 | Cytotoxic chemotherapy | 3.63(1.84,7.19) | 0.0002 |
|  |  |  | Oral cavity OAR Dmax dose | 1.57(1.11,2.21) | 0.0106 |
|  |  |  | Oral cavity OAR mean dose | 1.96(1.50,2.55) | <.0001 |
|  |  |  | Oral cavity OAR V10 | 2.19(1.54,3.13) | <.0001 |
|  |  |  | Oral cavity OAR V20 | 2.19(1.50,3.19) | <.0001 |
|  |  |  | Oral cavity OAR V30 | 2.26(1.48,3.46) | 0.0002 |
|  |  |  | Oral cavity OAR V40 | 2.29(1.43,3.65) | 0.0005 |
|  |  |  | Oral cavity OAR V50 | 2.44(1.44,4.15) | 0.0010 |
|  |  |  | Oral cavity OAR V60 | 3.25(1.68,6.31) | 0.0005 |
|  |  |  | Oral cavity OAR V70 | 17.4(2.59,116.84) | 0.0033 |
|  |  |  | Mean left parotid dose | 1.52(1.25,1.85) | <.0001 |
|  |  |  | Mean right parotid dose | 1.46(1.19,1.80) | 0.0003 |
|  |  |  | Mean total parotid dose | 1.98(1.51,2.59) | <.0001 |
|  |  |  | Mean left SMG dose | 1.69(1.37,2.08) | <.0001 |
|  |  |  | Mean right SMG dose | 1.69(1.38,2.08) | <.0001 |
|  |  |  | Protons | 3.15(1.61,6.15) | 0.0006 |
| CTCAE v4.03 salivary duct inflammation >grade 1 | 3 months | 13/187 | Oral cavity OAR mean dose | 1.87(1.26,2.78) | 0.0020 |
|  |  |  | Oral cavity OAR V20 | 1.96(1.09,3.52) | 0.0243 |
|  |  |  | Oral cavity OAR V30 | 2.27(1.20,4.27) | 0.0113 |
|  |  |  | Oral cavity OAR V40 | 2.41(1.22,4.76) | 0.0110 |
|  |  |  | Oral cavity OAR V50 | 2.59(1.22,5.50) | 0.0130 |
|  |  |  | Oral cavity OAR V60 | 2.98(1.25,7.13) | 0.0140 |
|  |  |  | Oral cavity OAR V70 | 5.37(1.13,25.62) | 0.0350 |
|  |  |  | Mean left parotid dose | 1.56(1.15,2.11) | 0.0043 |
|  |  |  | Mean right parotid dose | 1.48(1.07,2.04) | 0.0183 |
|  |  |  | Mean total parotid dose | 2.05(1.33,3.14) | 0.0011 |
|  |  |  | Mean left SMG dose | 2.94(1.23,7.02) | 0.0150 |
|  |  |  | Mean right SMG dose | 1.53(1.07,2.19) | 0.0208 |
| Measured weight loss >10% | End of Treatment | 21/186 | Cytotoxic chemotherapy | 5.63(1.81,17.45) | 0.0028 |
|  |  |  | Oral cavity OAR mean dose | 1.51(1.11,2.05) | 0.0094 |
|  |  |  | Oral cavity OAR V10 | 1.98(1.24,3.16) | 0.0041 |
|  |  |  | Oral cavity OAR V20 | 1.87(1.17,2.98) | 0.0089 |
|  |  |  | Oral cavity OAR V30 | 1.86(1.12,3.09) | 0.0173 |
|  |  |  | Oral cavity OAR V70 | 4.53(1.07,19.14) | 0.0400 |
|  |  |  | Mean left parotid dose | 1.45(1.13,1.85) | 0.0033 |
|  |  |  | Mean right parotid dose | 1.37(1.05,1.78) | 0.0206 |
|  |  |  | Mean total parotid dose | 1.82(1.29,2.57) | 0.0007 |
|  |  |  | Mean left SMG dose | 1.35(1.05,1.74) | 0.0191 |
|  |  |  | Mean right SMG dose | 1.4(1.11,1.77) | 0.0051 |
|  |  |  | Protons | 3.56(1.40,9.01) | 0.0075 |
| Measured weight loss >10% | 3 months | 55/182 | Cytotoxic chemotherapy | 2.41(1.26,4.62) | 0.0079 |
|  |  |  | Oral cavity OAR Dmax dose | 1.88(1.27,2.79) | 0.0017 |
|  |  |  | Oral cavity OAR mean dose | 1.47(1.16,1.86) | 0.0012 |
|  |  |  | Oral cavity OAR V10 | 1.76(1.26,2.45) | 0.0009 |
|  |  |  | Oral cavity OAR V20 | 1.88(1.31,2.69) | 0.0007 |
|  |  |  | Oral cavity OAR V30 | 1.93(1.29,2.89) | 0.0014 |
|  |  |  | Oral cavity OAR V40 | 1.86(1.20,2.90) | 0.0058 |
|  |  |  | Oral cavity OAR V50 | 1.8(1.09,2.96) | 0.0217 |
|  |  |  | Oral cavity OAR V70 | 4.38(1.04,18.39) | 0.0435 |
|  |  |  | Mean left parotid dose | 1.36(1.13,1.64) | 0.0009 |
|  |  |  | Mean right parotid dose | 1.43(1.16,1.75 | 0.0007 |
|  |  |  | Mean total parotid dose | 1.72(1.34,2.20) | <.0001 |
|  |  |  | Mean left SMG dose | 1.23(1.07,1.41) | 0.0032 |
|  |  |  | Mean right SMG dose | 1.3(01.13,1.49) | 0.0003 |
| Measured weight loss >10% | 6 months | 48/159 | Cytotoxic chemotherapy | 4.31(2.07,8.97) | <.0001 |
|  |  |  | Oral cavity OAR Dmax dose | 1.98(1.26,3.13) | 0.0033 |
|  |  |  | Oral cavity OAR mean dose | 1.48(1.14,1.93) | 0.0033 |
|  |  |  | Oral cavity OAR V10 | 1.68(1.17,2.42) | 0.0049 |
|  |  |  | Oral cavity OAR V20 | 1.85(1.24,2.76) | 0.0026 |
|  |  |  | Oral cavity OAR V30 | 1.79(1.15,2.77) | 0.0098 |
|  |  |  | Oral cavity OAR V40 | 1.69(1.04,2.72) | 0.0327 |
|  |  |  | Mean left parotid dose | 1.67(1.32,2.10) | <.0001 |
|  |  |  | Mean right parotid dose | 1.51(1.19,1.92) | 0.0007 |
|  |  |  | Mean total parotid dose | 2.13(1.56,2.91) | <.0001 |
|  |  |  | Mean left SMG dose | 1.42(1.19,1.69) | <.0001 |
|  |  |  | Mean right SMG dose | 1.45(1.22,1.73) | <.0001 |
| Measured weight loss >10% | 1 year | 47/159 | Cytotoxic chemotherapy | 3.63(1.77,7.43) | 0.0004 |
|  |  |  | Oral cavity OAR Dmax dose | 2.09(1.29,3.38) | 0.0027 |
|  |  |  | Oral cavity OAR mean dose | 1.90(1.41,2.56) | 0.0027 |
|  |  |  | Oral cavity OAR V10 | 1.74(1.21,2.50) | 0.0028 |
|  |  |  | Oral cavity OAR V20 | 2.19(1.44,3.34) | 0.0003 |
|  |  |  | Oral cavity OAR V30 | 2.17(1.35,3.47) | 0.0014 |
|  |  |  | Oral cavity OAR V40 | 2.06(1.23,3.43) | 0.0060 |
|  |  |  | Oral cavity OAR V50 | 1.91(1.08,3.39) | 0.0266 |
|  |  |  | Oral cavity OAR V70 | 33.19(2.57,428.80) | 0.0073 |
|  |  |  | Mean left parotid dose | 1.59(1.27,1.98) | <.0001 |
|  |  |  | Mean right parotid dose | 1.56(1.23,1.98) | 0.0003 |
|  |  |  | Mean total parotid dose | 2.05(1.52,2.76) | <.0001 |
|  |  |  | Mean left SMG dose | 1.46(1.22,1.75) | <.0001 |
|  |  |  | Mean right SMG dose | 1.48(1.24,1.77) | <.0001 |
| Measured weight loss >10% | 2 years | 34/148 | Oral cavity OAR Dmax dose | 1.6(1.03,2.48) | 0.0363 |
|  |  |  | Oral cavity OAR mean dose | 1.45(1.08,1.94) | 0.0130 |
|  |  |  | Oral cavity OAR V20 | 1.61(1.04,2.50) | 0.0322 |
|  |  |  | Mean left parotid dose | 1.32(1.06,1.64) | 0.0131 |
|  |  |  | Mean right parotid dose | 1.28(1.00,1.64) | 0.0473 |
|  |  |  | Mean total parotid dose | 1.51(1.14,2.00) | 0.0036 |
|  |  |  | Mean left SMG dose | 1.31(1.09,1.59) | 0.0045 |
|  |  |  | Mean right SMG dose | 1.28(1.07,1.53) | 0.0078 |
| PROMIS 10 global physical health T-score decrease >10 points | End of Treatment | 20/79 | Cytotoxic chemotherapy | 4.55(1.52,13.64) | 0.0068 |
| PROMIS 10 global physical health T-score decrease >10 points | 3 months | 12/84 | Oral cavity OAR Dmax dose | 5.22(1.66,16.44) | 0.0048 |
| PROMIS 10 global physical health T-score decrease >10 points | 1 year | 10/83 | Age | 2.19(1.07,4.46) | 0.0311 |
|  |  |  | Ever Smoker | 8.76(1.05,72.69) | 0.0445 |
| PROMIS 10 global mental health T-score decrease >10 points | 1 year | 9/83 | Oral cavity OAR V10 | 0.23(0.08,0.71) | 0.0105 |
|  |  |  | Oral cavity OAR V20 | 0.19(0.05,0.74) | 0.0166 |
|  |  |  | Oral cavity OAR V30 | 0.18(0.04,0.88) | 0.0348 |
|  |  |  | Mean total parotid dose | 0.53(0.30,0.93) | 0.0265 |
|  |  |  | Mean left SMG dose | 0.74(0.57,0.96) | 0.0245 |
| EORTC pain decrease > 10 pts | End of Treatment | 43/70 | Mean left parotid dose | 1.39(1.00,1.94) | 0.0477 |
| EORTC pain decrease > 10 pts | 3 months | 23/75 | Male | 0.27(0.09,0.81) | 0.0197 |
| EORTC pain decrease > 10 pts | 1 year | 16/76 | Age | 1.75(1.06,2.89) | 0.0299 |
| EORTC swallow decrease > 10 pts | End of Treatment | 40/72 | Mean left SMG dose | 1.26(1.03,1.53) | 0.0235 |
|  |  |  | Mean right SMG dose | 1.21(1.00,1.47) | 0.0472 |
| EORTC swallow decrease > 10 pts | 3 months | 18/75 | Oral cavity OAR Dmax dose | 2.94(1.21,7.15) | 0.0171 |
|  |  |  | Mean right parotid dose | 1.73(1.13,2.64) | 0.0110 |
|  |  |  | Mean total parotid dose | 1.74(1.11,2.75) | 0.0167 |
|  |  |  | Mean left SMG dose | 1.62(1.14,2.32) | 0.0076 |
|  |  |  | Mean right SMG dose | 1.46(1.10,1.94) | 0.0082 |
| EORTC swallow decrease > 10 pts | 6 months | 13/75 | Oral cavity OAR Dmax dose | 2.45(1.04,5.78) | 0.0405 |
|  |  |  | Mean total parotid dose | 1.71(1.02,2.87) | 0.0424 |
|  |  |  | Mean left SMG dose | 1.56(1.07,2.26) | 0.0193 |
|  |  |  | Mean right SMG dose | 1.57(1.10,2.24) | 0.0129 |
| EORTC swallow decrease > 10 pts | 2 years | 16/64 | Age | 1.98(1.11,3.55) | 0.0212 |
|  |  |  | Oral cavity OAR V70 | 229.8(3.48,>9999.99) | 0.0110 |
|  |  |  | Mean right SMG dose | 1.35(1.04,1.75) | 0.0222 |
| EORTC saliva decrease > 10 pts | End of Treatment | 49/71 | Male | 3.7(1.22,11.21) | 0.0205 |
|  |  |  | Oral cavity OAR mean dose | 1.59(1.03,2.47) | 0.0379 |
|  |  |  | Oral cavity OAR V10 | 1.93(1.07,3.49) | 0.0295 |
|  |  |  | Oral cavity OAR V20 | 2.26(1.07,4.77) | 0.0320 |
|  |  |  | Oral cavity OAR V30 | 2.42(1.03,5.72) | 0.0435 |
|  |  |  | Oral cavity OAR V40 | 2.68(1.03,6.98) | 0.0430 |
|  |  |  | Mean right SMG dose | 1.29(1.03,1.62) | 0.0264 |
| EORTC saliva decrease > 10 pts | 6 months | 45/72 | Ever smoker | 2.75(1.03,7.38) | 0.0440 |
|  |  |  | Mean left parotid dose | 1.51(1.08,2.10) | 0.0149 |
| EORTC saliva decrease > 10 pts | 1 year | 37/76 | Mean right parotid dose | 1.41(1.03,1.93) | 0.0336 |
|  |  |  | Mean right SMG dose | 1.24(1.02,1.49) | 0.0278 |
| EORTC saliva decrease > 10 pts | 2 years | 31/65 | Mean right SMG dose | 1.25(1.02,1.53) | 0.0321 |
| EORTC senses decrease > 10 pts | End of Treatment | 54/69 | Oral cavity OAR mean dose | 1.78(1.04,3.05) | 0.0355 |
|  |  |  | Mean right SMG dose | 1.34(1.03,1.75) | 0.0276 |
| EORTC senses decrease > 10 pts | 3 months | 49/74 | Age | 1.84(1.25,2.70) | 0.0021 |
|  |  |  | Hypertension | 3.54(1.14,10.95) | 0.0283 |
|  |  |  | Mean left parotid dose | 1.38(1.01,1.90) | 0.0439 |
| EORTC senses decrease > pts | 6 months | 41/73 | Age | 1.52(1.07,2.15) | 0.0183 |
|  |  |  | Oral cavity Dmax dose | 1.62(1.08,2.44) | 0.0207 |
| EORTC senses decrease > 10 pts | 1 year | 39/75 | Age | 1.9(1.27,2.85) | 0.0018 |
| EORTC senses decrease > 10 pts | 2 years | 29/61 | Age | 3.61(1.72,7.55) | 0.0007 |
| EORTC speech decrease > 10 pts | 3 months | 20/73 | Male | 0.25(0.08,0.78) | 0.0168 |
| EORTC speech decrease > 10 pts | 6 months | 20/75 | Male | 0.18(0.06,0.56) | 0.0028 |
| EORTC speech decrease > 10 pts | 2 years | 19/65 | Oral cavity OAR Dmax dose | 2.35(1.01,5.43) | 0.0463 |
| EORTC social eating decrease > 10 pts | End of Treatment | 46/71 | Oral cavity OAR mean dose | 1.52(1.01,2.31) | 0.0467 |
|  |  |  | Oral cavity OAR V10 | 1.84(1.04,3.23) | 0.0355 |
| EORTC social eating decrease > 10 pts | 3 months | 29/74 | Oral cavity OAR Dmax dose | 2.59(1.24,5.43) | 0.0117 |
|  |  |  | Mean total parotid dose | 1.46(1.02,2.11) | 0.0396 |
|  |  |  | Mean left SMG dose | 1.3(1.04,1.62) | 0.0219 |
| EORTC social eating decrease > 10 pts | 6 months | 14/75 | Age | 2.39(1.25,4.56) | 0.0085 |
|  |  |  | Oral cavity OAR Dmax dose | 2.45(1.05,5.72) | 0.0389 |
| EORTC social eating decrease > 10 pts | 1 year | 22/77 | Ever smoker | 3.53(1.14,10.90) | 0.0286 |
|  |  |  | Oral cavity OAR Dmax dose | 2.69(1.13,6.42) | 0.0253 |
| EORTC social eating decrease > 10 pts | 2 years | 17/65 | Age | 2.35(1.25,4.40) | 0.0077 |
| EORTC feeding tube | End of Treatment | 10/75 | Oral cavity OAR mean dose | 2.14(1.27,3.60) | 0.0041 |
|  |  |  | Oral cavity OAR V10 | 2.19(1.07,4.48) | 0.0313 |
|  |  |  | Oral cavity OAR V20 | 2.76(1.30,5.90) | 0.0086 |
|  |  |  | Oral cavity OAR V30 | 3.35(1.43,7.85) | 0.0054 |
|  |  |  | Oral cavity OAR V40 | 3.69(1.46,9.37) | 0.0059 |
|  |  |  | Oral cavity OAR V50 | 3.94(1.44,10.75) | 0.0074 |
|  |  |  | Oral cavity OAR V60 | 3.93(1.34,11.53) | 0.0126 |
|  |  |  | Oral cavity OAR V70 | 18.73(1.26,277.98) | 0.0333 |
|  |  |  | Mean right parotid dose | 2.05(1.25,3.37) | 0.0043 |
|  |  |  | Mean total parotid dose | 1.88(1.08,3.28) | 0.0260 |
|  |  |  | Mean right SMG dose | 1.69(1.07,2.65) | 0.0236 |
| EORTC weight loss | End of treatment | 14/75 | Mean left SMG dose | 1.32(1.01,1.72) | 0.0405 |
| EORTC weight loss | 3 months | 10/75 | Cytotoxic chemotherapy | 5.63(1.11,28.62) | 0.0373 |
| Start of opioid pain medication use | During or within 30 days of completing RT | 79/122 | DM prior to RT | 0.2 (0.05, 0.83) | 0.0266 |
|  |  |  | Cytotoxic chemotherapy | 4.97 (2.05, 12.05) | 0.0004 |
|  |  |  | Oral cavity OAR mean dose | 1.71 (1.22, 2.39) | 0.0019 |
|  |  |  | Oral cavity OAR V10 | 1.89 (1.22, 2.94) | 0.0043 |
|  |  |  | Oral cavity OAR V20 | 1.85 (1.13, 3.05) | 0.0150 |
|  |  |  | Oral cavity OAR V30 | 1.91 (1.08, 3.38) | 0.0270 |
|  |  |  | Oral cavity OAR V40 | 1.95 (1.02, 3.73) | 0.0438 |
|  |  |  | Mean left parotid dose | 1.39 (1.07, 1.81) | 0.0125 |
|  |  |  | Mean right parotid dose | 1.38 (1.03, 1.85) | 0.0288 |
|  |  |  | Mean total parotid dose | 1.66 (1.22, 2.26) | 0.0013 |
|  |  |  | Mean left SMG dose | 1.43 (1.20, 1.69) | <0.0001 |
|  |  |  | Mean right SMG dose | 1.25 (1.08, 1.45) | 0.0035 |
| Hospitalization | During or within 30 days of completing RT | 40/196 | Cytotoxic chemotherapy | 2.74 (1.33, 5.66) | 0.0063 |
|  |  |  | Oral cavity OAR mean dose | 1.38 (1.08, 1.76) | 0.0093 |
|  |  |  | Oral cavity OAR V10 | 1.86 (1.30, 2.67) | 0.0007 |
|  |  |  | Oral cavity OAR V20 | 1.80 (1.24, 2.61) | 0.0021 |
|  |  |  | Oral cavity OAR V30 | 1.79 (1.18, 2.71) | 0.0062 |
|  |  |  | Oral cavity OAR V40 | 1.70 (1.08, 2.67) | 0.0225 |
|  |  |  | Oral cavity OAR V50 | 1.72 (1.03, 2.87) | 0.0377 |
|  |  |  | Oral cavity OAR V60 | 1.86 (1.00, 3.45) | 0.0483 |
|  |  |  | Oral cavity OAR V70 | 6.83 (1.55, 30.13) | 0.0111 |
|  |  |  | Mean right parotid dose | 1.24 (1.00, 1.53) | 0.0498 |
|  |  |  | Mean total parotid dose | 1.31 (1.03, 1.67) | 0.0290 |
|  |  |  | Mean right SMG dose | 1.27 (1.09, 1.48) | 0.0024 |
|  |  |  | Photons | 2.38 (1.17, 4.85) | 0.0173 |

n: number of patients with the event/number of patients evaluable

OR: Odds Ratio

CI: Confidence Interval

Dmax: maximum dose in Gy RBE (1.1) to a volume of 0.01 cc

Mean: mean dose in Gy RBE (1.1) to the oral cavity OAR, total parotid glands, left parotid gland, right parotid gland, left submandibular gland, right submandibular gland

V10, 20, 30, 40, 50, 60, 70: volume of oral cavity OAR in cc which receives >= 10, 20, 30, 40, 50, 60, 70 Gy RBE (1.1).

SMG: submandibular gland

RT: radiotherapy

DM: diabetes mellitus