| **Supplementary Table 1. Characteristics of included studies.** |
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| Study IDStudy design | PopulationAgeGender (M/F) | Inclusion criteria Exclusion criteria | TreatmentOutcomes indictorsFollow-up (week or month) | ICG concentrationICG activationLaser parameters |
| Abbas Monzavi, et al. 2016 [35]Full-mouth design | N = 50Age (49.6 ± 8.5)M/F (25/25) | IC: chronic periodontitis;PPD ≥ 5 mm at least 3 teeth;Age ≥ 35;FMPS < 20% after SRP;Healthy subjects.EC：periodontal therapy or antibiotics for the past 6 months; smoker; gravida; systemic disease. | Test: aPDT+ SRPControl: SRPBOP, PPD, CAL,PI (heterogeneity), FMPS, FMBSBaseline, 1 month, 3 month | ICG: 1 mg/ml Activation time: not mentionedWavelength: 810 nm Output Power: 200 mW Application time: 40 sTotal energy: 10 J |
| Chetan Purushottam Raut, et al. 2018 [31]Full-mouth design | N = 50Age (49.8 ± 5.1)M/F (28/22) | IC: chronic periodontitisPPD > 5 mm and CAL > 4 mmHealthy subjectsEC: periodontal therapy or antibiotics for the past 12 months; smoker; gravida; systemic disease; allergic reaction to ICG.  | Test: aPDT+ SRPControl: SRPPPD, PI, CAL, BOPBaseline, 6 month | ICG: 5mg/ml Activation time: 60sWavelength: 810 nm Output Power: 800 mvApplication time: 60sEnergy density: 5.4 J/cm2 |
| Greta Hill, et al. 2019 [33]Split-mouth design  | N = 20Age 61.1M/F (3/17) | IC: chronic periodontitis PSI ≥ 3  PPD ≥ 4mm at least one single and multi-rooted tooth in each quadrant. PI < 30% EC: periodontal therapy or antibiotics for the past 6 months; smoker; gravida; systemic disease; allergic reaction to ICG. | Test: aPDT+ SRPControl: SRPBOP, SFFR, PPD, GRBaseline, 2 weeks, 3 month, 6 month | ICG: 0.1 mg/mlActivation time: 60 sWavelength: 808 nmOutput Power: 100 mwApplication time: 20 sEnergy density: 2829 J/cm2 |
| Kanchana Sukumar, et al. 2020 [32]Split-mouth design | N = 30Age (38.60 ± 6.75)M/F (22 /8) | IC: moderate chronic periodontitis(Stage Ⅱ Grade A).The periodontal destruction at least 3 teeth in each segment.   4 mm - 6 mm of PPD with attachment loss.EC: periodontal therapy or antibiotics for the past 3 months; Smoker; gravida; systemic disease; allergic reaction to ICG. | Test: aPDT+ SRPControl: SRPPI, GI, PPD, GBI, CALBaseline/1month, 3 month, 6 month | ICG: 1 mg/ml Activation time: not mentionedWavelength: 810 nm Output Power: 800 mWApplication time: 30 s |
| Karuna Joshi, et al. 2019 [36]Split-mouth design | N = 29Age 30-60M/F (14/15) | IC: moderate to serve chronic Periodontitis 5 mm - 7 mm of PPD at least 2 single-root teeth CAL ≥ 3 mm BOP at least 1 siteEC: periodontal therapy or antibiotics for the past 6 months; smoker; gravida; systemic disease; allergic reaction to ICG. | Test: aPDT+ SRPControl: SRPPI, sMBI, PPD, CALBaseline, 3 month | ICG: 1mg/ml Activation time: 60 sWavelength: 810 nmOutput Power: 200 mWApplication time: 30 s |
| Kaveri Kranti Gandhi, et al. 2018 [37]Split-mouth design | N = 30Age 30-60Gender was not described | IC: moderate to serve chronic periodontalPPD ≥ 5 mm at least one pocket in each quarter.EC: periodontal therapy or antibiotics for the past 6 months; smoker; gravida; systemic disease; allergic reaction to ICG | Test 1: aPDT+ SRPTest 2: LLLT+SRPControl: SRPPI, GI, PPD, CALBaseline, 1 month, 3 month, 6 month, 9 month | ICG: no concentrationActivation time: 120 sWavelength: 810 nmOutput power: 100 mW Application time: 120 s |
| Reza Birang, et al. 2015 [38]Split-mouth design  | N = 20Age (37.2 ± 8.6)M/F (7/13) | IC: Age ≥ 18 Healthy subjects Remaining tooth ≥ 204mm-7mm of PPD and CAL ≥ 2mm At least 3 sites each quarterEC：periodontal surgery for 1 years and antibiotics for the past 6 months; smoker; gravida;  | Test 1: aPDT+SRPTest 2: LLLT+SRPControl: SRPPPD, CAL, PI, PBIBaseline, 6 week, 3 month | ICG: no concertationWavelength: 810 nm Output power: 500 mWApplication times: 50 sActivation time: not mentioned |
| Saurabh H Shingnapurkar, et al. 2017 [34]Split-mouth design | N = 30Age 25-55 | IC：minimum 20 toothChronic periodontitis At least 4 teeth with probing depth ≥5 mm (two tooth in contralateral quadrant)EC: periodontal therapy for the past 3 months and antibiotics for the past 6 months smoker; gravida; | Text: aPDT+SRPControl: SRPPI, GI, PPD, RAL(CAL)Baseline, 1 month, 3 month | ICG: 1 mg/mlWavelength: 810 nm Output power: 200 mWApplication times: 30 sEnergy density: 0.0125 J/cm2Total energy: 3 J |
| IC: Inclusion criteria; PSI: Periodontal Screening Index in Germany; EC: Exclusion criteria; SRP: scaling and root planning; aPDT: antimicrobial photodynamic therapy; LLLT: low level laser therapy; PPD: probing pocket depth; CAL: Clinical Attachment Loss; PI: plaque index; GI: gingival Index; GBI: gingival bleeding index; FMPS: full mouth plaque score; FMBS: full mouth bleeding score; SFFR: sulcus fluid flow rate; GR: gingival recession; sMBI: modified sulcular bleeding index; PBI: papilla bleeding index; RAL: relative attachment level. |