Table 1: Controlled clinical trials of cannabis-based medicines for chemotherapy-induced nausea and vomiting

Source: Natalie Magaya-Kalbermatten, CAM-Cancer Consortium. Medical cannabis and cannabinoids [online document]. 19th January 2016.

First author, year, (ref)	Study design	Participants (number, diagnosis)	Interventions (experimental treatments, control)	Main outcome measures	Main results	Comments
Meiri 2007 (24)	RCT	64 patients receiving moderate to high emetogenic chemotherapy	Dronabinol (individual dose titration, median 20mg/day) vs dronabinol + ondansetron vs ondansetron vs placebo	Primary outcome: Total response (=no vomiting, nausea <5mm on a 100mm VAS, no use of rescue medication) for delayed CINV (day 2-5 after administration of chemotherapy) Secondary outcomes: presence or absence of nausea, intensity of nausea (VAS)	Efficacy: Primary outcome: all (!) active groups not more effective than placebo Secondary outcomes: Active groups not different and significantly more effective than placebo for both secondary outcomes Tolerability: no difference between the groups	Underpowered trial
Duran 2010 (25)	Phase II-RCT	16 patients receiving moderately emetogenic chemotherapy that had suffered from delayed CINV despite standard prophylaxis in the previous chemotherapy cycle	Nabiximols (individual dose titration, mean dose equivalent to 12.9mg THC) vs placebo as add-on to standard prophylaxis and treatment of CINV	Primary endpoint: complete (no vomiting, mean nausea VAS <10) or partial (vomiting 1-4 times daily, nausea VAS <25mm) response during the first 120 hours post chemotherapy. Secondary endpoints: absence of emesis, nausea <25mm VAS in the delayed period	Efficacy: Primary endpoint: significantly more patients complete response in the active than the placebo group, markedly in the delayed period (after 1st day) Secondary endpoints: difference not statistically significant Tolerability: more mild to moderate adverse events in the active group	Preliminary efficacy trial, needs confirmation with larger population

CINV: acute chemotherapy-induced nausea and vomiting; RCT: randomised clinical trial; THC: delta-9-tetrahydrocannabinol; VAS: visual analogue scale.

Table 2: Controlled clinical trials of cannabis-based medicines for symptoms associated with cancer cachexia

Source: Natalie Magaya-Kalbermatten, CAM-Cancer Consortium. Medical cannabis and cannabinoids [online document]. 19th January 2016

First author, year, (ref)	Study design	Participants (number, diagnosis)	Interventions (experimental treatments, control)	Main outcome measures	Main results	Comments (critical evaluation, weaknesses, etc.)
Jatoi 2002 (28)	RCT	469 advanced cancer patients with weight loss	Dronabinol 5mg daily vs megestrol vs the combination of both, as long as it was tolerated	Primary endpoints: appetite (validated questionnaire), body weight Secondary endpoints: QoL (FAACT, single item scale)	Efficacy: Megestrol superior to dronabinol, combination not better than megestrol alone for primary and secondary endpoints Tolerability: More impotence with megestrol, otherwise no difference	
Cannabis-In-Cachexia-Study-Group 2006 (29)	RCT	243 advanced cancer patients with weight loss	THC 5 mg daily vs cannabis whole plant extract (THC 5 mg daily, CBD 2 mg daily) vs placebo for 6 weeks	Primary endpoints: appetite (VAS), QoL (composite score of 2 EORTC-QLQ-C30 questionnnaire) Secondary endpoints: mood (VAS), nausea (VAS)	Efficacy: No difference between the groups for primary and secondary endpoints Tolerability: No difference between the groups in terms of cannabis-related toxicity	Recruitment terminated early because of insufficient differences between study arms
Brisbois 2011 (30)	Phase II-pilot-RCT	46 advanced cancer patients with altered taste and smell perceptions and decreased food intake	THC (individual dose titration) daily vs placebo	Primary endpoint: chemosensory complaints (Taste and Smell Survey) Secondary endpoints: appetite (SLIM scale), food intake, nausea (NRS), QoL (FAACT)	Efficacy: THC better than placebo for chemosensory complaints, appetite and food intake, not for QoL Tolerability: No difference between the groups	Pilot trial, needs confirmation with fully powered study

CBD: cannabidiol; EORTC-OLQ-30: European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire C30; FAACT: Functional Assessment of Anorexia/Cachexia Therapy questionnaire; QoL: quality of life; NRS: numeric rating scale; RCT: randomised clinical trial; SLIM: Satiety Labeled Intensity Magnitude scale; THC: delta-9-tetrahydrocannabinol; VAS: visual analogue scale.

Table 3: Controlled clinical trials of cannabis-based medicines for cancer pain

Source: Natalie Magaya-Kalbermatten, CAM-Cancer Consortium. Medical cannabis and cannabinoids [online document]. 19th January 2016

First author, year, (ref)	Study design	Participants (number, diagnosis)	Interventions (experimental treatments, control)	Main outcome measures	Main results	Comments (critical evaluation, weaknesses, etc)
Johnson 2010 (31)	RCT	177 patients with cancer pain insufficiently relieved by opioids	Nabiximols (individual dose titration, mean daily THC dose 25mg) vs THC-rich extract (mean daily THC dose 23 mg) vs placebo for 2 weeks	Primary outcomes: Change of pain (NRS) from baseline Use of breakthrough medication Secondary outcomes: sleep quality, nausea, memory, concentration, and appetite (all NRS), use of opioid background medication	Efficacy: Nabiximols significant improvement of pain vs placebo, THC rich extract not different from placebo No difference in use of breakthrough medication between the groups No difference for background opioid medication, sleep quality and nausea; memory, concentration, and appetite significantly better in the placebo group (!) than in the active groups Tolerability: More mild to moderate adverse events in both active groups compared to placebo	
Portenoy 2012 (20)	RCT	360 patients with cancer pain insufficiently relieved by opioids	Three dose ranges of nabiximols vs placebo (3-11 mg THC, 16-27 mg THC, 30- 43 mg THC) for 5 weeks	Primary outcome: Pain (NRS) response (at least 30% reduction of NRS pain score) Secondary endpoint: continuous responder analysis, NRS pain change, sleep disturbance (NRS), Brief pain inventory short form, QoL (EORTC-QLQ-C30, PAC-QoL), depression (MADRS), global impression of change (PGIC)	Efficacy: Primary outcome not different between groups Secondary outcome continuous responder analysis: Significantly more responders in the lower and middle dose groups (not in the higher dose group) vs placebo, other secondary outcomes not difference Tolerability: only high dose group significantly more adverse events than placebo	Pain syndromes not equally distributed between the groups, previous cannabis experience more frequent in the active groups than the placebo group

Table continued

Lynch 2014 (35)	Pilot RCT	18 patients with chemotherapy-induced neuropathic pain	Nabiximols (individual dose titration) vs placebo for 4 weeks	Primary outcome: NRS pain change Secondary outcomes: QoL (SF-36_), sensory alterations (QST)	Efficacy: No difference between the groups, but 5 patients responders Tolerability: well tolerated	Pilot trial, needs confirmation with fully powered study

EORTC-OLQ-30: European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire C30; MADRS: Montgomery-Asberg Depression Rating Scale; PAC: procaspase-activating compound; PGIC: Patient Global Impression of Change scale; QoL: quality of life; QST: quantitative sensory testing; NRS: numeric rating scale; RCT: randomised clinical trial; SF-36 Short Form-36 Health Survey; THC: delta-9-tetrahydrocannabinol; VAS: visual analogue scale.