Identifying the gaps, reducing the waste, and setting priorities in Cochrane gynaecology research

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Abstract

Objective The aim of this project was to identify gaps and research waste in the dissemination of Cochrane gynaecology evidence in the Cochrane database of systematic reviews (CDSR). Design A research article Setting The Cochrane Gynaecology and Fertility (CGF) Group's specialised register of random controlled trials (RCTs). Sample Trials looking at benign gynaecological conditions, contained in the CGF specialised register, published between the years 2010-2011. Methods Gynaecology trials from the CGF specialised register were matched, by the specific gynaecological issue and treatment, to existing Cochrane reviews. Unmatched trials were categorised to develop and prioritise new review topics. Main outcome measures Proportions Results 740 trials, published from 2010 to 2011, were exported from the specialised register, after removing duplicates and out of scope trials, 185 of these trials were found to be already included in Cochrane reviews. 422 trials were found to be unused, however 192 (26%) of these could be included in an existing CGF SR if it were updated. 230 trials (32%) were not matched to any review title and from these 21 new review titles were developed. The topic with the largest number of associated 'unused' trials, was 'Plant and herbal extracts for symptoms of menopause'. Conclusions This project was used to consider unused trials, prioritise new review topics and identify those reviews that need to be updated, thereby identifying the gaps in evidence for women with gynaecological problems.

Identifying the gaps, reducing the waste, and setting priorities in Cochrane gynaecology research: Research article

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The Cochrane Gynaecology and Fertility (CGF) Group's specialised register of random controlled trials (RCTs).

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Methods

Gynaecology trials from the CGF specialised register were matched, by the specific gynaecological issue and treatment, to existing Cochrane reviews. Unmatched trials were categorised to develop and prioritise new review topics.

Main outcome measures

Proportions

Results

740 trials, published from 2010 to 2011, were exported from the specialised register, after removing duplicates and out of scope trials, 185 of these trials were found to be already included in Cochrane reviews. 422 trials were found to be unused, however 192 (26%) of these could be included in an existing CGF SR if it were updated. 230 trials (32%) were not matched to any review title and from these 21 new review titles were developed. The topic with the largest number of associated 'unused' trials, was 'Plant and herbal extracts for symptoms of menopause'.

Conclusions

This project was used to consider unused trials, prioritise new review topics and identify those reviews that need to be updated, thereby identifying the gaps in evidence for women with gynaecological problems.

Keywords

research waste, gaps, gynaecology, randomized controlled trials, systematic reviews, prioritisation.

Tweetable abstract

Research dissemination in gynaecology could be improved by ensuring existing Cochrane reviews are updated and creating new Cochrane reviews to include unused primary evidence.

Introduction

Cochrane aims to produce high quality, rigorous health care evidence to inform clinical practice by the production and dissemination of systematic reviews (SRs), network meta-analyses and overviews [(1)]. Cochrane reviews are used in international guidelines, pathways and by international institutions such as the WORLD Health Organisation. Cochrane disseminates RCT evidence to these organisations and the Gynaecology and Fertility Group (CGF), is one of 53 Cochrane review groups responsible for this dissemination through the production of SRs[(2)].

To facilitate and support the production of SRs, the CGF maintains a specialised database containing over 20,000 randomised controlled trials (RCTs) which are incorporated into SRs by review authors. The trials come from various sources, including weekly email alerts from MEDLINE, Embase, CINAHL and PsycINFO, handsearching of conference abstracts and journal alerts. This database is used for research projects[(3-5)] and is imported into CENTRAL on a regular basis [(6)].

The CGF Register of trials is an asset, and the best way for RCTs to add to the evidence base is through incorporation into Cochrane SRs. The CGF specialised register shows that approximately 480 benign gynaecology trials are published each year[(2)]. However, we had no data on whether these trials were incorporated

in Cochrane SR's. A project carried out by the Cochrane Acute Respiratory Infections Group found that 41% of the RCTs in this field were not being used in Cochrane SRs [(7)]

To negate waste and increase the impact of research in women's health we need priority setting exercises for gynaecology uncertainties, that include all stakeholders[(8)]. However, a SR evaluating these studies in women's health[(9)] found that benign gynaecology was vastly under-represented. Endometriosis was the only area where the top ten priorities had been published[(10)].

Unused research comes with huge costs, not only in monetary value but more importantly, in ethical cost, in terms of the time and potential risk for the people who volunteer to be randomised into the trials[(11)]. People become involved in trials for various reasons but an important one is that their experience will help improve the health of others [(12-14)]. Ethically, it is important that the information gained from these trials contributes to the evolution of healthcare [(15)].

The aim of this project was to identify gaps and extent of research waste due to the lack of dissemination of gynaecology evidence in the Cochrane database of systematic reviews (CDSR).

Methods

All gynaecology RCTs with a date range from 2010-2011 were exported from the CGF specialised register (a bibliographic management database using a ProCite® platform). This database contains benign gynaecology and fertility trials. The gynaecology trials are coded in the database with all the varying conditions and treatments around gynaecology, and the fertility trials are coded simply with the term 'subfertility' (along with other conditions and interventions) so the search used a strategy of "does not contain" the keyword "subfertility", and this provided the gynaecology cohort of trials.

A two-year time-period was a pragmatic decision and was chosen to give an indication of the scope of the problem. We considered that the time lag, from 2011 to present, should have allowed enough time for the trials to be incorporated into the appropriate SRs.

The list of selected RCTs was exported from a ProCite® database into EndNote® (reference management systems), then the text file was imported into an Excel® spreadsheet – the 'master sheet'. Trials were then excluded if they were either not in the scope of this project or were an inappropriate publication type, these included letters, authors' replies, and errata. The scope of this project includes RCTs that look at interventions for benign gynaecological health issues. The conditions of benign gynaecology included menopause, gynaecological surgery, polycystic ovary syndrome (PCOS), painful menstruation, endometriosis, adenomyosis, dysfunctional uterine bleeding, fibroids, premenstrual syndrome, disorders of menstrual cycle, chronic pelvic pain and hyperandrogenism. The interventions for these conditions included medicines, alternative therapies, lifestyle interventions, psychological and physical therapies and surgery.

The CENTRAL Register of Studies (CRS Web), a web-based repository of Cochrane trials, which records links between trials in the repository and Cochrane reviews, was searched by trial's title and/or author's name to discover whether it had been used in a Cochrane review.

Trials were coded as 'used' or 'unused', if the trial had been linked to a Cochrane review (used), we then noted if the trial was in the included, excluded, awaiting assessment, or the ongoing trial sections of the Cochrane SR. The 'used' or 'unused' decisions were double-checked by manually searching the reference sections of appropriate systematic reviews in the Cochrane library.

The unused trials were then categorised first by population (health condition), and then by specific interventions. Following the coding of trials based on population and intervention, trials were checked against existing Cochrane review titles to determine if they could be included in an updated version of the review, and if so, they were coded as 'existing reviews". The unused trials that were categorised as 'out of scope' (either not an RCT or not in the gynaecology scope) or 'duplicate' (either the same publication appearing in the database twice or a separate publication of the same trial, and in this case, we only used the primary publication) were excluded.

Unused trials that could be considered for new review titles, categorised into their health condition and specific intervention, were then used to formulate a list of potential new titles for CGF reviews. From this list, new topics were prioritised if they had three or more associated unused trials. The rationale for this for priority setting decision was that a SR would require analysis of least two RCTs allowing for one to be potentially excluded from the SR.

Results

Between 2010 and 2011, 740 published trials of interventions for benign gynaecology conditions were found by searching the CGFG specialised register. Of these 740 trials, we excluded 15, nine of these were secondary publications and six were fertility trials and therefore out of scope.

Of the remaining 725, CRS Web classified 159 trials as used, and 566 trials as unused (78%) in CGF SRs. Of these unused trials, a further 95 publications were excluded: 73 of these were subsequent publications of the same trials and 22 were found to be out of scope or protocols.

The 471 unused trials were then categorised into 11 gynaecological health conditions: menopause, gynaecological surgery, PCOS, painful menstruation, endometriosis, heavy menstrual bleeding, fibroids, premenstrual syndrome, cyclic disorders (i.e., amenorrhoea), chronic pelvic pain and hyperandrogenism and these conditions were then linked to six intervention groups: medical, alternative therapy, lifestyle, psychological, surgery and physical therapies (table 1). During this process a further 23 trials were excluded due to being out of scope or found to be used in a CGF SR. We also hand-searched the reference sections of Cochrane SRs with similar intervention and populations to double check these used/unused decisions, and we found that 26 of these trials were used by other Cochrane groups, most commonly in Cochrane Anaesthesia reviews, so these were then moved to the 'used' trials cohort. Therefore 422 trials of the total 725, were classified as unused (32%) by any Cochrane systematic reviews. 192 of these could be linked to an existing Cochrane SR and could be used if or when the review was updated (figure 1).

Grouping by population showed that the vast majority of unused trials were in the 'menopause' category followed by surgery for benign gynaecological conditions (table 2). Medical interventions (generally one medical intervention compared to another) and alternative therapy were the most common interventions in the menopause group, and medical therapy in the gynaecological surgery group (generally the use of different analgesics and anaesthetics) (figure 2).

There are 104 potentially new topics for Cochrane systematic reviews from the 230 unused trials to become SR titles (figure 3), however only 22 of these topics captured three or more trials, the number considered to be the minimum required to produce a useful SR. Menopause had seven new topics, with 3 or more associated trials, the largest being 'Plant and herbs for menopausal symptoms. Gynaecological surgery had six new topics, the largest was 'Pregabalin (pre-surgery) for analgesia post abdominal hysterectomy (table 3).

Discussion

Main Findings

Over half of the trials (58%) in the specialised register published from 2010 -2011 were not being disseminated in Cochrane SRs and as such could be considered wasted evidence. Of the unused trials 45% of these could be used if an existing review was updated. Cochrane review authors are encouraged to update their review every two years[16] and it is surprising to find a large number of trials of this age that have not been incorporated into CGF SRs. In this project we have identified the reviews that each of these trials could fit and they will be prioritised and updated accordingly.

Strengths and limitations

Here we have answered a question regarding the numbers and scope of gynaecology trials that were not being included in Cochrane systematic reviews, however due to time restraints we were limited in practical terms,

to only being able to study those trials published from 2010-2011, and we did not have the opportunity to match these unused trials to non-Cochrane reviews.

However, this pragmatic approach allowed for a comprehensive collection of RCTs in gynaecology to be investigated in-depth, in terms of the population, intervention and inclusion status in any existing

Cochrane SR.

Interpretation

The number of unused trials (32%) compares unfavourably to the audit of the fertility trials over the same time period where only 14% of all trials in the specialised register being classified as unused[17]. The Cochrane Acute Respiratory Infections Group (CARIG) paper [7] that found 41% of the RCTs in their specialised register were unused, although this difference could be attributed to the longer time-period of this audit, as the CARIG group incorporated 5285 trials from 1930 to 2014.

Trials using plant and herbal remedies for menopausal symptoms were the most commonly unused trials, this does not reflect the increasing consumer interest in complementary medicine[18]. The wastage of these unused trials is an important ethical consideration for the women enrolled in these trials. In the future we need to ensure that their sacrifice is not wasted, and they would be willing to participate in future trials [11, 15].

One of the top ten questions for endometriosis in the priority setting partnerships[8-10]: "what are the outcomes and/or success rates for surgical or medical treatments which aim to cure or treat endometriosis rather than manage it?", fits broadly into our identified SR topic for endometriosis 'Surgical techniques for laparoscopic resection of endometrioma'.

In accordance with the recommendations of priority setting exercises[8], the next step for prioritisation of topics in this project is to develop a short survey to be disseminated to healthcare consumers (via task exchange) and to the CGF editors for prioritisation of the new review topics.

Conclusions

This project developed new review topics and identified reviews that need to be updated, thereby identifying research that is not being disseminated resulting in research waste and gaps in the evidence for women with benign gynaecology conditions.

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Disclosure of Interests

The authors on this paper do not have any financial, personal, political, intellectual or religious conflicts of interest.

Contribution to Authorship

Marian Showell, Vanessa Jordan and Cindy Farquhar all had a role in the conception, planning, carrying out, analysing and writing up of the work. Devanshi Jani had a role in planning, carrying out, extracting the data, analysing and writing up of the work. All authors commented on drafts and the final document.

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Table 1. Number of RCTs not used in SRs - classified by Population and Intervention topics

Population (health condition)	Medical	Alternative	Lifestyle	Psychological	Surgery	Physical	Tota
Menopause	87	69	40	3		6	205
Gynaecological Surgery	75	3			42	2	122
Polycystic Ovary Syndrome	31	10	3				44
Painful Menstruation	7	17	1	1		1	27
Endometriosis/Adenomyosis	14	5			5		24
Dysfunctional Uterine Bleeding	10	2			3		15
Fibroids	5			1	7		13
Premenstrual Syndrome	2	10					12
Disorders of Menstrual Cycling	4						4
Chronic Pelvic Pain	1					2	3
Hyperandrogenism	2						2
Total	**238**	**116**	**44**	**5**	**57**	**11**	**471**

Table 2. RCTs matched to existing reviews across Cochrane Entities or for the creation of new review topics

Populations	Trials that could be included in an existing review	Trials for new review top
Menopause	65 (34%)	65 (34%)
Gynaecological Surgery	61 (32%)	61 (32%)
Polycystic Ovary Syndrome	12 (6%)	12 (6%)
Painful Menstruation	16 (8%)	16 (8%)
Endometriosis/Adenomyosis	13 (7%)	13 (7%)
Heavy menstrual bleeding	6 (3%)	6 (3%)
Fibroids	10 (5%)	10 (5%)
Premenstrual Syndrome	4 (2%)	4 (2%)
Disorders of Menstrual Cycling	3 (2%)	3 (2%)
Chronic Pelvic Pain	2 (1%)	2 (1%)
Hyperandrogenism	0	0
Total	**192**	**192**

Table 3. New topics created and number of associated trials

Clinical area	New topic
Menopause	
	Plant and herbal extracts for symptoms of menopause
	Exercise for cardiac disease risk factors in menopause
	Diet for cardiac disease risk factors in menopause
	Plant and herbal extracts for cardiac disease risk factors in menopausal women
	Diet and exercise for cardiac disease risk factors in menopause
	Hormone therapy for cardiac disease risk factors in menopause
	Phytoestrogens for depression and cognition in menopause
Gynaecological surgery	Transdermal patches for post-operative analgesia following gynaecological surgery
	Anaesthetics for hysteroscopy, local with inhaled sedation or general
	Pregabalin (pre surgery) for analgesia post abdominal hysterectomy
	Regional (spinal, epidural, caudal) versus general anaesthesia in women undergoing al
	Uterine distention media and pressures for hysteroscopic myomectomy
	Embolic materials for uterine artery embolisation of uterine fibroids

Clinical area	New topic
Polycystic ovary syndrome (PCOS)	Hormone therapy versus another hormone therapy for women with PCOS
	Anti-androgen drugs for women with PCOS not actively trying to conceive
	Metformin versus other drugs for women with PCOS
	Dietary/Herbal Supplements for women with PCOS
Painful menstruation	Physical therapy for women with primary dysmenorrhoea
	Selective Serotonin Receptor Agonists for women with menstrual related migraine
Endometriosis	Surgical techniques for laparoscopic resection of endometrioma
Premenstrual syndrome	Herbal/plant extracts for premenstrual syndrome

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