Transmission and treatment of cutaneous warts in general practice

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CHAPTER 6

Current choices in the treatment of cutaneous warts: a survey among Dutch general practitioners

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ABSTRACT

Background

General practitioners (GPs) apply several treatments for patients with cutaneous warts. Available evidence recommends salicylic acid application.

Objective

We investigated whether current choices of GPs in the treatment of warts are in agreement with available evidence.

Methods

A nationwide random sample of 700 Dutch GPs received a postal questionnaire on their choices in the treatment of warts. In addition, factors that influence these choices, their view on the effectiveness of treatments, and their view on the natural history of warts were assessed.

Results

The questionnaire was returned by 280 GPs (40%). Cryotherapy was first choice treatment in 73% of GPs for hand warts, in 49% of GPs for plantar warts, and in 72% of GPs for warts on other locations. Salicylic acid application or the combination of cryotherapy and salicylic acid were used less frequently, followed by an wait-and-see policy and (electro) surgery. Most important factors influencing their treatment choice were GPs' routine and GPs' views on effectiveness.

Conclusion

In contrast to available evidence, most GPs apply cryotherapy as first choice treatment of cutaneous warts. Pragmatic high-quality trials on the effectiveness of wart treatments conducted in primary care might solve this discrepancy between evidence and practice.

INTRODUCTION

Up to one third of primary school children have cutaneous warts.[1] The prevalence of warts presented to general practitioners (GPs) over a year is approximately 2% in general population, and adds up to 6% in school children. Warts rank 11th in most frequently presented complaints and diseases in general practice.[2;3] However, subsequent wart treatment causes annoying side effects and often is as effective as a wait-and-see policy. As a consequence, different treatment modalities are applied.[4]

Previous studies carried out nearly 2 decades ago showed that in general practice, if available, liquid nitrogen cryotherapy was most frequently applied. When cryotherapy was not available, topical salicylic acid was prescribed or patients were referred to dermatology clinics.[5,6] However, after these studies were conducted wart management has changed considerably. Firstly, availability of liquid nitrogen has increased extensively and many general practices now have wart clinics in which cryotherapy is implemented. Secondly, the recent Cochrane review on topical treatments for warts concludes that, although evidence is sparse and conflicting, salicylic acid is the most effective treatment option.[7] As a result, present guidelines recommend salicylic acid as first choice treatment of warts.[8,9]

We performed a survey on choices in the treatment of warts among GPs in the Netherlands in order to investigate whether current practice is in agreement with current evidence. We also explored GPs' views on effectiveness of treatment and natural history of warts in order to explicate their treatment choices.

METHODS

Preparation

In April 2006 we enrolled GPs with different backgrounds for explorative semi-structured individual interviews on wart management. The interviews were moderated by two researchers. Field notes were discussed by all authors and translated into hypotheses. Sufficient information for this process was gathered after five interviews (2 female and 3 male GPs, experience ranging from 8 years to 20 years, working in single-handed, duo or group practice). Based on the results from these interviews, we constructed the postal questionnaire.

In June 2006, the postal questionnaire was sent to a random sample of 700 GPs from the GP register of the Netherlands Institute for Health Services Research (NIVEL).[10] Three weeks after initial mailing, GPs who had not returned the questionnaire received a reminder.

Questionnaire

We clearly defined that all questions concerned patients with cutaneous warts, i.e. common warts or plantar warts, excluding genital warts or molusca contagiosa. We asked GPs to estimate the percentages of patients treated with each of the various treatments in their practice (adding up to 100% in total), separately for patients with hand warts, plantar warts, and other warts (warts on parts of the skin other than hands or feet). GPs could choose from the following treatments: cryotherapy, salicylic acid, combination of cryotherapy and salicylic acid, a wait-and-see policy, (electro) surgical removal, or another specific treatment.[4]

We assessed factors which influence GPs in these treatment choices, i.e. routine, scientific evidence, financial considerations, the balance between effectiveness and side effects, colleagues' opinions, and practical/organizational considerations. In addition, we assessed the views on effectiveness of different treatments and their views on the natural history of warts. We graded these opinions using statements in the questionnaire according to 5 point rating scales. These answers were later dichotomised into 'effective' ('very effective' and 'effective' combined) and 'not effective' ('absolutely not effective', 'not effective' and 'moderately effective' combined) for GPs' views on effectiveness of different treatments and into 'agree' ('agree' and 'strongly agree' combined) and 'not agree' ('do not agree or disagree', 'disagree' and 'strongly disagree' combined) for GPs' views on the natural history of warts, because five categories did not reveal additional information over two categories.

Statistical analysis

We compared main characteristics of participating GPs with main characteristics of all Dutch GPs.[10] Results are displayed as percentages with corresponding 95% confidence intervals (CI). We used Chi-square tests to compare categorical data. Data were analyzed with SPSS Version 16.0 and Episheet, Version 2003.[11]

RESULTS

GPs' response rate was 40% (280/700). Participating GPs covered a practice population of approximately 550,000 citizens, and were representative for the Dutch population of GPs (Table 6.1). In total, only 9% (95%CI 6-13%) of GPs did not have liquid nitrogen available, and 20% (95%CI 16-26%) did not use salicylic acid (Table 6.2). GPs estimated that 5% of their patients with warts were referred to dermatologic or surgical outpatient clinics.

Cryotherapy was most often used as GPs' first choice treatment for all warts, followed by salicylic acid application and cryotherapy/salicylic acid combination therapy (Table 6.3).

Table 6.1: Characteristics of participating GPs compared to all Dutch GPs.

Characteristics	Participating GPs (n=280)	All Dutch GPs[10] (n=8495)
Male	60 (54-66)	66 (65-67)
Mean age in years (SD)	46.6 (8.7)	47.9 (8.3)
GP in urban practice	86 (82-90)	88 (87-88)
GP working in		
Single-handed practice	31 (26-36)	25 (24-26)
Duo practice	30 (25-35)	30 (29-31)
Group practice	40 (34-45)	45 (44-46)

Data are % of general practitioners (GPs) (95% confidence intervals), unless stated otherwise.

Table 6.2: Aspects of wart management in general practice (n=280).

Assistant regularly provides	
Oral information	82 (77-86)
Written information	17 (12-22)
Liquid nitrogen available in practice*	
Continuously	36 (30-41)
Intermittently	56 (50-61)
No	9 (6-13)
Salicylic acid prescription used	
Solution 31-50%	23 (18-28)
Solution ≤ 30%	57 (51-62)
No	20 (16-26)
Mean percentage (SD) of treatments applied by	
Practice assistant	68 (36)
General practitioner	32 (34)

Numbers are % of general practitioners (GPs) (95% confidence intervals), unless stated otherwise.
Data is missing for 52 GPs in information data, none in nitrogen availability data, 5 GPs in salicylic acid use, and 1 GP in implementation data.
* Sum of percentages is not equal to 100% due to rounding off.

Treatments with salicylic acid were more frequently applied in plantar warts compared to hand warts or other warts. For all warts, only 5-7% of GPs used a wait-and-see policy as first choice and only few GPs used monochloroacetic acid[12] or duct tape[13] as first choice treatment. In other warts, 26 GPs (10%) used (electro) surgery as first choice.
Several factors influenced GPs' treatment choice: of all GPs (n=280, missing data in n=8 to n=23 per factor), 59% (95%CI 53-65%) was influenced by routine, 46% (95%CI 40-52%) by the balance between effectiveness and side effects, 29% (95%CI 24-35%) by evidence, 25% (95%CI 20-30%) by colleagues' opinions, 21% (95%CI 17-27%) by practical/organizational considerations, and 5% (95%CI 3-8%) by financial motives. Of all GP's, 71% (95%CI 65-76%) considered cryotherapy to be effective versus 55% (95%CI

Table 6.3. GPs' first choice treatment of warts depending on location (n=280).

	Location of warts					
	Hand (n=278)		Plantar (n=276)		Other locations (n=266)	
First choice treatment	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)
Cryotherapy	204	73 (68-78)	136	49 (43-55)	192	72 (67-77)
Combination of cryotherapy and salicylic acid	45	16 (12-21)	82	30 (25-35)	23	9 (6-13)
Salicylic acid	30	11 (8-15)	50	18 (14-23)	32	12 (9-16)
Wait-and-see	19	7 (4-10)	15	5 (3-9)	22	8 (6-12)
(Electro)surgery	4	1 (1-4)	8	3 (1-6)	26	10 (7-14)
Monochloroacetic acid	8	3 (1-6)	10	4 (2-7)	5	2 (1-4)
Duct tape	0	0 (0-1)	3	1 (0-3)	2	1 (0-3)

Data are numbers of general practitioners (GPs) and % of GPs (95% confidence intervals). Data is missing for 2 GPs in hand, 4 GPs in plantar, and 14 GPs in other warts. Sum of GPs is >280 and sum of percentages is >100% per location of warts, because 10-14% of GPs reported to apply two or three different treatments equally frequent.

49-61%) for salicylic acid, 66% (95%CI 60-71%) for the combination therapy, and 47% (95%CI 41-53%) for a wait-and-see policy (Table 6.4). The GPs using cryotherapy as first choice treatment more often considered cryotherapy to be effective than GPs not using cryotherapy as first choice treatment ($p<0.001$).

According to 82% (95%CI 77-86%) of GPs warts are self-limiting and according to 34% (95%CI 29-40%) of GPs warts are very contagious. The percentages of GPs agreeing with these two statements did not differ between the GPs with a wait-and-see policy as their

Table 6.4. Perceived effectiveness of different treatments according to GPs' personal experience (n=280)

	GPs personal experience		
Treatment	Effective	Not effective	No experience with treatment
Cryotherapy*	71 (65-76)	27 (22-32)	3 (1-5)
Combination of cryotherapy and salicylic acid	66 (60-71)	15 (11-20)	19 (15-24)
Salicylic acid	55 (49-61)	39 (33-45)	6 (4-10)
Surgical removal	42 (36-48)	37 (31-43)	21 (16-26)
Monochloroacetic acid	25 (20-31)	23 (18-28)	52 (46-58)
Duct tape	12 (9-16)	26 (21-32)	62 (56-67)
Homeopathy	3 (1-5)	59 (53-65)	38 (33-44)
Wait-and-see	47 (41-53)	45 (39-51)	9 (6-13)

Numbers are % of general practitioners (GPs) (95% confidence intervals). Data is missing for 1 to 15 GPs per treatment.

* Sum of percentages is not equal to 100% due to rounding off.

first choice and GPs with active treatments as their first choice (p=0.83 and p=0.20, respectively), and did also not differ between the GPs who considered a wait-and-see policy to be effective and those who considered a wait-and-see policy not to be effective (p=0.076 and p=0.26, respectively). A majority of all GPs (73% (95%CI 68-78%)) reported to advise patients with warts to wait-and-see when the inconvenience caused by warts is limited.

DISCUSSION

Summary of main findings

Cryotherapy is the first choice treatment of warts among Dutch GPs. Salicylic acid is used less frequently, and often in combination with cryotherapy. GPs' treatment choices are guided by their routine and their views on effectiveness, rather than evidence or opinions on the natural history. Although GPs most often choose active treatments, they prefer a wait-and-see policy when inconvenience caused by warts is limited, because they believe warts are self-limiting.

Strengths and limitations of this study

This is the first quantitative study on choices in the treatment of warts after cryotherapy became widely available in primary care and after the Cochrane review on topical treatments of warts has been published.[7] Our sample of GPs was large and representative for all Dutch GPs. Moreover, we think that our results contain patterns that are likely to be similar in other countries in which patients with warts are primarily treated in general practice and liquid nitrogen is widely available.

A limitation of our study is the response rate of 40%. Although our response rate is comparable to response rates of surveys among GPs in literature,[14] and our responders in general did not differ from all Dutch GPs in general, the high preference for cryotherapy might be due to some selection bias. Perhaps, GPs interested in wart treatment and cryotherapy have responded more often. On the other hand, recall bias (cryotherapy is often applied by practice assistants and out of sight from GPs) and social desirability bias (overestimation of influence by evidence, underestimation of financial motives) could have played a role. However, GPs practice can not be evaluated in a more careful way then we did.

Evidence versus practice

Ideally, treatment practice reflects available evidence on effectiveness. According to the recent Cochrane review on topical treatments for warts, evidence favours the use of sali-

cylic acid.[7] In contrast, our survey shows that GPs prefer cryotherapy over salicylic acid. The recent NHS Health technology Assessment's qualitative study on opinions with regard to the treatment of warts shows a similar trend as our survey: health professionals' opinions towards cryotherapy were quite positive and opinions towards salicylic acid were fairly negative.[15] This discrepancy between evidence and practice can be explained in different ways. Firstly and most importantly, recommendations on the treatment of warts favouring salicylic acid[8,9] do not have a firm evidence base, since they are based on small, low quality studies. Direct comparison between cryotherapy and salicylic acid in the two available randomised studies did not show a difference in effectiveness.[16,17] In absence of clear and direct evidence, GPs' confidence in the effectiveness of cryotherapy could represent the actual competence of cryotherapy. As a consequence, we conclude in accordance with the Cochrane review that more randomised trials are needed.[7] Secondly, increasing availability of liquid nitrogen could have led to increasing demand for cryotherapy among patients.[6] GPs tend to act upon patient's personal ideas and treatment preferences when the natural history of the disease is favourable. Although GPs prefer a wait-and-see policy when the inconvenience caused by warts is limited (as shown in our study), they may comply with the patient's demand for cryotherapy nonetheless. Lastly, it has been suggested that GPs prefer cryotherapy because they financially profit from its implementation.[18] In our survey, however, only 5% of GPs report that financial reasons influence their treatment choice.

Implications for future research

This survey clearly shows the discrepancy regarding the treatment of warts between available evidence and current practice. This may partly be due to the low quality of the underlying evidence which is a common phenomenon in minor ailments.[19] Although non-adherence to guidelines based on low quality evidence is of limited clinical importance for practice, it is of high importance for clinical research. Only pragmatic high-quality trials in primary care can solve this problem.

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