Gastric Pathology Follow-up Study In Canadian Arctic Communities

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BACKGROUND

Helicobacter pylori infection in Canadian Arctic communities

- Predominantly Indigenous communities with much higher prevalence than southern Canadian multiethnic populations
- Community members advocated for research aimed at reducing prevalence and related health risks

Canadian North *Helicobacter pylori* (CAN*Help*) Working Group

- Team of community leaders, health officials and academic researchers conducts community-driven projects in Yukon (YT) and Northwest Territories (NT) to address community concerns about *H. pylori* infection

Old Crow, YT
2011 Population: 245
90% Gwitchin
Accessed only by air

Aklavik, NT
2006 Population: 590
90% Inuvialuit or Gwich'in
Accessed by air, water or ice-road

Fort McPherson, NT
2011 Population: 792
90% Gwich'in, Inuvialuit or Metis
Accessed by air, water, or road

OBJECTIVE

To describe changes in gastric pathology in CAN*Help* community project participants who completed upper gastrointestinal endoscopy at baseline and several years after treatment for *H. pylori* infection.

METHODS

Upper gastrointestinal endoscopy at baseline

- Held in mobile units set up in Aklavik (2008), Old Crow (2012) and Fort McPherson (2013)
- 5-6 gastric biopsies per participant for histopathology assessment using Sydney System

Treatment for *H. pylori* infection

- *H. pylori*-positive participants received treatment followed by a urea breath test (UBT) at ≥8 weeks after treatment to assess treatment success

Follow-up endoscopy in 2017

- 6 gastric biopsies per participant for histopathology using Sydney System

RESULTS

Table 1. Demographic characteristics of endoscopy participants, at baseline and follow-up

	Baseline		Follow-up	
	n	%	n	%
Total	308	100	62	100
Sex				
Male	137	44	23	37
Female	171	56	39	63
Ethnicity				
non-Indigenous	22	8	2	3
Inuvialuit	121	41	26	44
Gwich'in	133	45	30	50
Other*	17	6	2	3
Age at endoscopy (yrs)				
<30	75	24	3	5
30 to 59	174	56	39	63
60+	59	19	20	32

**Excluding missing data*

Table 2. Prevalence of histopathologic diagnoses among endoscopy participants, at baseline and follow-up

	Baseline (n=308)			Follow-up (n=62)		
	n	%	95% CI	n	%	95% CI
***H. pylori* infection**	222	72	67, 77	17	27	17, 40
Acute gastritis						
Mild	104	34	29, 39	11	18	9, 30
Moderate	81	26	21, 32	16	26	16, 38
Severe	32	10	7, 14	0	0	0, 5
Chronic gastritis						
Mild	27	9	6, 12	11	18	9, 30
Moderate	100	32	27, 38	10	16	8, 28
Severe	106	34	29, 40	3	5	1, 13
Atrophic gastritis	95	31	26, 36	10	16	8, 28
Intestinal metaplasia	44	14	11, 19	10	16	8, 28

Table 3. Within-individual change from baseline to follow-up in the severity of chronic and acute gastritis in 19 participants not treated in study period, by *H. pylori* (*Hp*) infection status

Baseline	*Hp* (+)		*Hp* (-)	
Follow-up	*Hp* (+) n = 3	*Hp* (-) n = 2	*Hp* (+) n = 1	*Hp* (-) n = 13
Chronic gastritis				
None at both times	0	0	0	9
Lower	0	2	0	1
Unchanged	2	0	0	0
Higher	1	0	1	3
Acute gastritis				
None at both times	0	0	0	13
Lower	0	2	0	0
Unchanged	2	0	0	0
Higher	1	0	1	0

Table 4. Within-individual change from baseline to follow-up in the severity of chronic and acute gastritis in 43 participants treated at baseline, by *H. pylori* (*Hp*) infection status

Baseline	*Hp* (+)			
Follow-up	*Hp* (+)		*Hp* (-)	
	%	95% CI	%	95% CI
Chronic gastritis				
Negative UBT ≥8 weeks after treatment	n = 6		n = 24	
None at both times	0	-	0	-
Lower	33	4, 78	100	88, 100
Unchanged	67	22, 96	0	-
Higher	0	-	0	-
Positive or uncertain UBT ≥8 weeks after treatment	n = 7		n = 6	
None at both times	0	-	0	
Lower	57	18, 90	100	61, 100
Unchanged	29	4, 71	0	-
Higher	14	0.4, 58	0	-
Acute gastritis				
Negative UBT ≥8 weeks after treatment	n = 6		n = 24	
None at both times	0		4	0.1, 21
Lower	33	4, 78	96	79, 100
Unchanged	50	12, 88	0	-
Higher	17	0.4, 64	0	-
Positive or uncertain UBT ≥8 weeks after treatment	n = 7		n = 6	
None at both times	0	-	0	-
Lower	29	4, 71	100	61, 100
Unchanged	57	18, 90	0	-
Higher	14	0.4, 58	0	-

CONCLUSIONS

- Most participants who were successfully treated remained free of *H. pylori* infection for several years after treatment.
- Though study size is small, all who remained infection-free at follow-up had decreased acute and chronic gastritis severity.

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