



Influenza Vaccination in Healthcare Workers: Comparison of the Perception of Intradermal versus Intramuscular Administration

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Introduction

Recently, an inactivated split-virion influenza vaccine for intradermal (i.d.) administration has been introduced. Advantages over the current intramuscular (i.m.) vaccine include a lower dose of viral antigen (9µg vs. 15µg of hemagglutinin per strain) and an anticipated improved acceptance of the vaccine. Influenza vaccination of health-care workers (HCWs) has been shown to contribute to the protection of vulnerable patients. Yet, vaccination rates among HCWs remain very low, in part due to real or perceived side effects of the flu shot. In this study, the nature, severity and perception of side effects of i.d. vs i.m. vaccination were compared in a prospective cohort questionnaire study.

Methods

This study was conducted among HCWs of two University Medical Centers in the Netherlands, Utrecht and Groningen, during the influenza vaccination season of 2012/2013. HCWs were vaccinated with either Vaxigrip® or Influvac® (i.m.) or Intanza® (i.d.). All vaccinees were asked after the vaccination to take part in this study and participants were sent an anonymous web-based questionnaire. The side effects were scored on a scale from 0-10. Data were analyzed using SPSS. For statistical analysis an independent samples t-test was used.

Results

Table 1 Baseline characteristics

Characteristic Personal data	Study subject	UMCG	UMCU
Respondents	1477	811 (55.8%)	642 (44.2%)
Male	29.5%	256 (31.6%)	171 (26.6%)
Female	70.5%	549 (68.4%)	469 (73.4%)
Mean year of birth	1970	1967	1973
Direct contact with patients	49.6%	385 (47.5%)	331 (51.6%)
Previously vaccinated	89.8%	743 (91.6%)	560 (87.2%)
Intradermal vaccin	1073 (73%)	766	289
Intramuscular vaccin	396 (27%)	40	351

Fig. 1 Perception and preference of type of vaccination

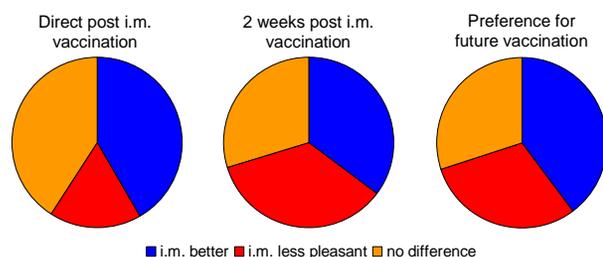
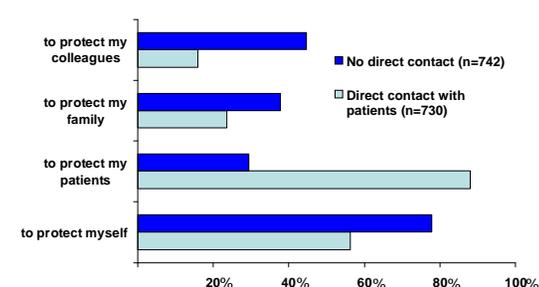


Table 2 Side effects upon i.m. and intradermal vaccination

Overview side effects after vaccination	Intradermal (n=1006)	Intramuscular (n=393)	P-value
Side effects after vaccination	605 (56.8%)	102 (26.0%)	<0.001
Local side effects	565 (56.2%)	90 (22.9%)	0.012
Systemic side effects	128 (12.7%)	23 (5.9%)	NS
Spontaneous recovery	97.2%	98.0%	NS
Previously vaccinated	89.6%	90.6%	NS
Local side effects	Intradermal (n=565)	Intramuscular (n=90)	P-value
Pain	4.54 (n=450)	4.68 (n=79)	0.617
Swelling	5.67 (n=513)	3.41 (n=70)	<0.001
Redness of the skin	6.53 (n=517)	3.87 (n=63)	<0.001
Warm feeling	5.41 (n=458)	3.53 (n=66)	<0.001
Itching	5.26 (n=489)	3.02 (n=63)	<0.001
Sucutaneous hemorrhage	1.38 (n=389)	1.89 (n=55)	0.016
Systemic side effects	Intradermal (n=128)	Intramuscular (n=23)	P-value
Headache	3.61 (n=73)	4.8 (n=15)	0.165
Fatigue	5.34 (n=86)	7.00 (n=19)	0.018
Myalgia	5.23 (n=80)	5.84 (n=19)	0.371
Joint pain	2.98 (n=62)	3.86 (n=14)	0.396
Flu-like symptoms	6.26 (n=96)	6.50 (n=20)	0.699
Lymphadenopathy	3.48 (n=61)	3.29 (n=14)	0.830

Fig. 2 Motivation for vaccination



- In total 1477 persons returned the questionnaire
- 1073 were vaccinated intradermally
- 396 received intramuscular vaccination
- There was a significant difference in side effects between both administration routes.
 - i.d. administration led to a significant higher rating of the local side effects
 - Only fatigue was reported significantly less after i.d. administration.

Conclusions

This study shows that there are significant differences in the nature and severity of side effects upon i.m. or i.d. influenza vaccination. This difference, however, did not result in a preference among the vaccinated subjects for one route of vaccine administration over the other.

