Impact of comorbidity and lifestyle related factors on functioning in aging polio survivors

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1 Aging

- A complex multidimensional phenomena:
  - Genetic, biological, physical, psychological, social factors.
  - Aging → decrease in functional reserves and multi-morbidity.
1 Aging

• Decrease in functional reserves $\rightarrow$ decrease in physical functioning.

• Lower social and environmental demands $\rightarrow$ less active life style.
1 Aging in polio survivors

Problems in functioning
1 Aging

• Polio survivors age → like general population they develop comorbidity.

• Polio survivors have paresis → less able to lead an active life style → prone to certain types of comorbidity?
Program

1. Aging
2. Comorbidity
3. Lifestyle related factors
4. Impact of comorbidity and lifestyle related factors on functioning
5. Conclusion and key points
2 Comorbidity

- Polio survivors have a higher prevalence of
  - Cardiovascular disease.
  - Pulmonary disease.
  - Endocrine and metabolic disease.
  - Diseases of the locomotive apparatus.


2 Cardiovascular disease

- Ischemic heart disease (OR: 1.20 - 2.53)
- Hypertension (OR: 1.51 - 2.79).
- Arrhythmias (OR: 1.20 - 2.40).

- Possible explanation: lower level of physical activity.
2 Pulmonary disease

- Late onset respiratory failure.
- Chronic pulmonary disease (OR: 1,54 - 2,50).
- Asthma (OR: 1,38 - 2,98).
2 Endocrine and metabolic disease

- Diabetes (OR: 2.29).
- Hyperlipidemia (OR: 2.45).
- Hypothyroidism (OR: 1.73).

2 Diseases of the locomotive apparatus

- Arthrosis (OR: 1.16).
- Osteoporosis (OR: 2.10).
- Increased risk of fractures.

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3 Lifestyle related factors

- Daily physical activity
  - Lower in polio survivors.
  - Associated with muscle strength and experienced pain.

3 Lifestyle related factors

- Excess body weight.
  - Case-controlled study: higher prevalence of obesity in polio survivors.
  - No data from population based studies.
  - How to measure excess body weight?

Program

1 Aging

2 Comorbidity

3 Lifestyle related factors

4 Impact of comorbidity and lifestyle related factors on functioning

5 Conclusion and key points
4 Impact of comorbidity on functioning

• Few studies have focussed on the impact of comorbidity on functioning in polio survivors.

• CARPA study.
4 CARPA study

- Prospective follow-up study during 5 years.
- 168 patients aged 45-85 with late onset sequelae of poliomyelitis.
- To study the course of physical functioning and to identify prognostic determinants of change in functioning, with emphasis on the impact of age and comorbidity.
4 Results of CARPA study

• Slow decline in physical functioning in accordance with other studies.

• Prognostic factors for course of functioning:
  - Comorbidity.
  - Extent of paresis.

4 Impact of comorbidity on functioning

- More comorbidity → lower level of functioning.
- More comorbidity → faster decline in functioning.

<table>
<thead>
<tr>
<th>Patient</th>
<th>Gender</th>
<th>age</th>
<th>Arm strength</th>
<th>Leg strength</th>
<th>Comorbidity score</th>
<th>Total FIM at baseline</th>
<th>Decline FIM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>65</td>
<td>42</td>
<td>45</td>
<td>0</td>
<td>118</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>F</td>
<td>65</td>
<td>42</td>
<td>45</td>
<td>10</td>
<td>117</td>
<td>3</td>
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4 Impact lifestyle related factors functioning

- Polio survivors reporting regular physical activity → higher functional level.

- Weight gain → risk factor post polio syndrome.

## Program

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5 Conclusion

- Higher level of comorbidity $\rightarrow$ lower level of functioning and faster decline in functioning in polio survivors.

- The lifestyle related factors physical inactivity and excess weight are associated with a lower level of functioning in polio survivors.
5 Treatment

- Screening on:
  - Diabetes, hyperlipidemia, hypothyroidism.
  - Osteoporosis.
  - Lung function.
5 Treatment

• Information on:
  - Weight control.
  - Daily physical activity.
  - Prevention of overload of muscles.
5 Further research

• More studies on impact of comorbidity and lifestyle related factors on functioning.
• Preferable follow-up > 4 years.
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